Douglas Partners
Geotechnics / Environment / Groundwater

Integrated Practical Solutions

Report on
Preliminary Site Investigation (Contamination)

Proposed Apartment Building
6 & 10-12 Rutledge Street and Part 257 Crawford St,
Queanbeyan

Prepared for
The Village Building Co Ltd

Project 210506.01
November 2021

Douglas Partners
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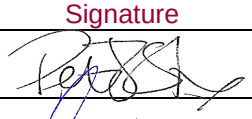
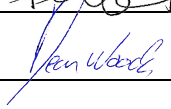
Author		Peter Storey	24 November 2021
Reviewer		Dean Woods	24 November 2021

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Executive Summary

Douglas Partners Pty Ltd (DP) has been engaged by The Village Building Co Ltd to complete this preliminary site investigation (contamination) (PSI) undertaken for a proposed apartment building for the site at 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan (the site).

The objective of the PSI was to assess the potential for contamination at the site based on past and present land uses, to comment on the need for further investigation and/or management and to comment on the suitability of the site for the proposed development from a contamination perspective.

The following scope of works was undertaken to meet the project objectives:

Site History Review

- Preparation of a list of Potential Areas of Environmental Concern (PAEC) through investigation of the site by the following methods:
  - a search through the Contaminated Land Register for notices issued under the CLM Act;
  - a search through the dangerous good database held by SafeWork NSW;
  - a review of available historical aerial photography;
  - a review of historical land titles with respect to the Deposited Plan to identify previous site owners;
  - a search of the NSW Office of Water's registered groundwater bore database;
  - review of existing reports;
  - site walkover inspection by a senior environmental scientist.

Environmental Sampling

- Positioning of five boreholes across the site as outlined in the geotechnical scope of works;
- Drilling of five boreholes to depths of between 13.1 m and 18.0 m below ground level.
- Installation of piezometers in three boreholes in order to measure depths to groundwater and infer possible groundwater flow direction;
- Soil sampling at 0.5 m increments, or changes in strata until 0.5 m depth into natural soil;
- Laboratory testing on 10 soil samples for a combination of TPH/BTEX, PAH, PCBs, OCPs, OPPs, phenols, heavy metals and asbestos. One additional sample was tested for quality control purposes; and
- Preparation of this report detailing the results of the investigation and commenting on the likely need, if any for further investigation and/or remediation works and commenting on the suitability of the site for its intended use.

Based on the current investigation, the following potential sources of contamination and associated contaminants of potential concern (COPC) have been identified.

- S1: Fill: Associated with levelling, demolition of former buildings on the site and potential burying of waste as evidenced in the site's environment protection licences.

  - COPC include metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), organochlorine pesticides (OCP), phenols and asbestos.

- S2: Service Station and former workshop located potentially upgradient of the site - USTs and associated pipework and bowsers.
  - COPC include lead, TRH, BTEX, PAH, and volatile organic compounds (VOC).

The results of the field work indicated that fill material was present at the site and that depths to groundwater ranged between 5.5 m to 6.2 m bgl. Groundwater flow direction was inferred to be towards the south.

Analytical results of soil samples were all within the adopted health-based (i.e. HIL-B / HSL-A/B) and management limits for high density residential land use.

DP considers that the site is suitable for use as high density residential units, from a site contamination perspective, subject to the following measures during any future development works:

- Should any fill or stockpiled material be required to be disposed off-site, they must first be assessed in accordance with NSW EPA Waste Classification Guidelines Part 1 Classifying Waste (2014) and assigned a waste classification prior to off-site disposal; and
- A Construction Environment Management Plan should be prepared prior to construction including an ‘unexpected finds protocol’ (i.e. asbestos in fill, buried waste or hydrocarbon affected soils including staining and odours and evidence of heavy pesticide use) and implemented during potential future site works.

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Table of Contents

Page

Report on Preliminary Site Investigation (Contamination)
Proposed Apartment Building
6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

1. Introduction

Douglas Partners Pty Ltd (DP) has been engaged by The Village Building Co Ltd to complete this preliminary site investigation (contamination) (PSI) undertaken for a proposed apartment building for the site at 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan (the site). The site is shown on Drawing 1, Appendix A. The investigation was undertaken in accordance with DP's proposal 210506.00.P.001.Rev0 dated 2 November 2021.

DP understands that an eight storey apartment building with two basement levels are being considered at the site and that a PSI has been requested as part of due diligence in acquisition of the site.

The objective of the PSI was to assess the potential for contamination at the site based on past and present land uses, to comment on the need for further investigation and/or management and to comment on the suitability of the site for the proposed development from a contamination perspective.

This report must be read in conjunction with all appendices including the notes provided in Appendix B.

The following key guidelines were consulted in the preparation of this report:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013);
- NSW EPA *Guidelines for Consultants Rporting on Contaminated Land* (NSW EPA, 2020); and
- NSW Department of Urban Affairs and Planning, Managing Land Contamination Planning Guidelines SEPP 55–Remediation of Land, 1998.

2. Proposed Development

DP understands that the development of the site will likely include the demolition of existing buildings followed by the construction of a mixed used development likely comprising up to 8 storey high buildings with up two basement levels. Given the location of the site close to Queanbeyan central business district (CBD), it is considered likely that the ground floor would be used for commercial space with residential apartments above. No further design details were known at the time of reporting.

3. Scope of Works

The following scope of works was undertaken to meet the project objectives:

Site History Review

- Preparation of a list of Potential Areas of Environmental Concern (PAEC) through investigation of the site by the following methods:
  - a search through the Contaminated Land Register for notices issued under the CLM Act;
  - a search through the dangerous good database held by SafeWork NSW;
  - a review of available historical aerial photography;
  - a review of historical land titles with respect to the Deposited Plan to identify previous site owners;
  - a search of the NSW Office of Water's registered groundwater bore database;
  - review of existing reports;
  - site walkover inspection by a senior environmental scientist.

Environmental Sampling

- Positioning of five boreholes across the site as outlined in the geotechnical scope of works;
- Drilling of five boreholes to depths of between 13.1 m and 18.0 m below ground level.
- Installation of piezometers in three boreholes in order to measure depths to groundwater and infer possible groundwater flow direction;
- Soil sampling at 0.5 m increments, or changes in strata until 0.5 m depth into natural soil;
- Laboratory testing on 10 soil samples for a combination of TPH/BTEX, PAH, PCBs, OCPs, OPPs, phenols, heavy metals and asbestos. One additional sample was tested for quality control purposes; and
- Preparation of this report detailing the results of the investigation and commenting on the likely need, if any for further investigation and/or remediation works and commenting on the suitability of the site for its intended use.

4. Site Information

Site Address	6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan
Legal Description	Lot 31 DP771673 (6 Rutledge Street) Lot 2 DP748338 (10 Rutledge Street) Lot 18 DP548244 (12 Rutledge Street) Lot 2 DP1179998 (Part 257 Crawford Street)
Area	5,850 m^2
Zoning	Zone B3: Commercial Core

Local Council Area	Queanbeyan Palerang Region Council
Current Use	Office / commercial space
Proposed Use	High density residential
Surrounding Uses	North – Car park and commercial properties, including theatre East – Crawford Street with commercial properties and residential South – Church, childcare and residential properties West – Commercial (Queanbeyan Library) with high density residential beyond.

4.1 Site Description

The site is located to the west of the roundabout intersection of Rutledge Street and Crawford Street in Queanbeyan and covers an area of approximately 5,850 m^2. The site is bordered by Rutledge Street to the south-east, Crawford Street to the north-east, a construction site to the north-west and existing commercial buildings to the south-west.

At the time of the investigation, the site comprised a number of existing single and double storey buildings with associated asphalted and gravel surfaced car parks, paved footpaths and landscaped areas. The south western part of the site comprises the Queanbeyan Library Building, with a construction site occupying the land immediately north east. A large tree was present towards the middle of the site, with rows of trees along the north-eastern and south-eastern boundaries. Figure 1 below shows the general conditions of the site at the time of the investigation.

Figure 1: Site Location

5. Environmental Setting

Regional Topography	The regional topography slopes down from high hills present to the south and east of the site down towards Queanbeyan town centre, in which the site is located. The maximum elevation of hills to the east of the site is approximately 800 m AHD
Site Topography	The site topography is generally flat, sloping down gently towards the east towards the Queanbeyan River.
Soil Landscape	Reference to the NSW Department of Planning, Industry and Environment eSPADE website (www.environment.nsw.gov.au/eSpade2Webapp, accessed 1 July 2021) indicates that the majority of the site is located on the Winnunga Soil landscape. The Winnunga Soil Group is characterised by gentle slopes and alluvial fans on Ordovician metasediments. Soils are shallow, moderately well drained Tenosols on crests and upper slopes, moderately deep, moderately well drained chromosols on side slopes and moderately deep to deep imperfectly drained sodosols on lower slopes and drainage lines. Given the topography of the local area, it is considered the site lies on lower slopes characterised by the soil landscape. The soil group is characterised by its strong acidity, localised high water tables, gully erosion risk and seasonal waterlogging.
Geology	Reference to the Canberra 1:100 000 Geological Series Sheet indicates that the site is underlain by the Pittman Formation of Late to Middle Ordovician age. The Pittman Formation typically comprises interbedded sandstone, siltstone, shale and minor black shale, chert and impure calcareous sandstone (distal quartz turbidites).
Acid Sulfate Soils	Reference to the NSW Department of Planning, Industry and Environment eSPADE website (www.environment.nsw.gov.au/eSpade2Webapp, accessed 1 July 2021) indicated that the site was located in an area of low probability of the occurrence of acid sulfate soils.
Surface Water	The nearest surface water feature to the site is the Queanbeyan River, located approximately 250 m to the east of the site, at its closest point.
Groundwater	The 1:100,000 map 'Hydrogeology of the Australian Capital Territory and Environs' indicates that the site is underlain by geological units of Early Silurian and Ordovician age. These typically include: quartz arenite, siltstone, shale, sandstone, greywacke, minor black shale, quartzite, chert and granitoids. The unit is typically fractured. Higher yielding zones are associated with the lower portions of the high relief areas. The average yield is mapped as being >1 L/s and total dissolved solids is mapped as being between 500 mg/L to 1,000 mg/L.

5.1 Groundwater Bores

A search of the publicly available registered groundwater bore database indicated that there are three registered groundwater bores within 1 km of the site. Attributes of the three groundwater bores located within 1 km of the site are summarised in Table 1 and further details are presented in Appendix C.

Table 1: Summary of Available Information from Nearby Registered Groundwater Bores

Bore ID Authorised Purpose Completion Year Status	Location Relative to Site	Final Depth (m)	Standing Water Level (m bgl)	Yield (L/s)
GW403854 Recreation, 2007, unknown status	290m W	80.00	12.00	1.43
GW404605 Recreation, 2007, unknown status	565m W	140.00	6.00	0.81
GW405060 Recreation, 2008, unknown status	550m NW	60.3	4.0	11.00

6. Site History

6.1 Historical Aerial Photography

Several historical aerial photographs were obtained from public databases. Extracts of the aerial photographs are included in Appendix D. A summary of key features observed for the site and surrounding land is presented in Table 2.

Table 2: Summary of Historical Aerial Photographs

Year	Site	Surrounding Land Use
1961	The site appeared to be developed into rectangular lots, that appeared to be used for residential purposes. Several buildings appeared to be present, though the building footprints were not clearly visible.	The surrounding area had been developed and was part of Queanbeyan. The road layout was consistent with the current day layout. It appeared that the surrounding land use was predominantly residential. The Queanbeyan River was located to the east of the site.
1976	The site appeared to have been redeveloped. An access road through to an area north of the site had been constructed in the western end of the site. Buildings in the central portion of the site appeared to have been redeveloped.	The area to the north of the site appeared to have been developed as a car park, with commercial building developed further to the north.

Year	Site	Surrounding Land Use
1985	Largely unchanged from the previous aerial photograph.	Largely unchanged from the previous aerial photograph. A building had been developed immediately to the north of the site.
1992	Largely unchanged from the previous aerial photograph. A building (Queanbeyan Library) had been developed in the western portion of the site.	Largely unchanged from the previous aerial photograph. Further buildings had been constructed to the north of the site.
1998	Largely unchanged from the previous aerial photograph.	Largely unchanged from the previous aerial photograph.
2004	Largely unchanged from the previous aerial photograph.	Largely unchanged from the previous aerial photograph.
2014	Largely unchanged from the previous aerial photograph	Largely unchanged from the previous aerial photograph
2020	Largely unchanged from the previous aerial photograph	Largely unchanged from the previous aerial photograph. The building immediately to the north of the site had been demolished and replaced with a car park and landscaping.

6.2 Title Deeds

A historical title deeds search was requested for the site. At the time of writing this report, the results of the title deed search had not been received.

6.3 Public Registers and Planning Records

EPA Notices available under Section 58 of the Contaminated Lands Management Act (CLM Act) Database searched: 18 November 2021	There were no records of notices for the site or adjacent sites.
Sites notified to EPA under Section 60 of the CLM Act	The site is not listed as a notified contaminated site. There are two properties notified to the EPA within 1 km of the site

Database searched: 18 November 2021	• Woolworths Queanbeyan Service Station – 196 Crawford Street [370 m north] – Service Station- regulation under the CLM Act not required; and • Bill Lilley Automotive – 169 Crawford Street [380 m north] – Service Station- regulation under the CLM Act not required. Further details are presented in Appendix C.
Licences listed under Section 308 of the Protection of the Environment Operations Act 1997 (POEO Act) Database searched 18 November 2021	There were no records issued to the site or adjacent sites. The closest record was listed for the Greater Southern Area Health Service (Queanbeyan Hospital) at Cnr Erin and Collett Streets [approx. 750 m north]. The licence activity type was listed as 'Hazardous, industrial or Group A waste generation or storage' and the licence was listed as no longer in force.
SafeWork NSW	A search of hazardous substances records held by SafeWork NSW for the site was requested. At the time of writing this report, a response had not been received.
Planning Certificates	Planning certificates for the site were obtained from Queanbeyan Palerang Regional Council. The certificates are dated 8 November 2021. The following information was stated: • A preliminary soil contamination assessment was carried out on the northern half of Lot 2 DP1179998 (to the north of the site). The report indicated that there was no contamination impacting that portion of the lot and that it was suitable for its proposed commercial land use. Further details are provided in Section 7. • The land within Lot 31 DP771673 has not been assessed for the likelihood of contamination by Council. • The land was not reported to contain loose fill asbestos. • The land was not reported to be bush fire prone land. • The land was not located in bio-diversity certified land. The site was not located in a mine subsidence or road widening/construction area. The planning certificates are presented in Appendix C.

6.4 Site History Integrity Assessment

The information used to establish the history of the site was sourced from reputable and reliable reference documents, many of which were official records held by Government departments/agencies. The databases maintained by various Government agencies potentially can contain high quality information, but some of these do not contain any data at all.

In particular, aerial photographs can provide high quality information that is generally independent of memory or documentation. They are only available at intervals of several years, so some gaps exist in

the information from this source. The observed site features are open to different interpretations and can be affected by the time of day and/or year at which they were taken, as well as specific events, such as flooding. Care has been taken to consider different possible interpretations of aerial photographs and to consider them in conjunction with other lines of evidence.

7. Previous Environmental Works

7.1 Preliminary Site Investigation Opus, 2017

Opus International Consultants (Australia) Pty Ltd (Opus) was engaged by Queanbeyan Palerang Regional Council (QPRC) to undertake a PSI of a parcel of land to the north of the site currently under investigation. The land was proposed to be developed for a new QPRC administration building.

The objectives of the PSI included an assessment of site contamination and the need for further investigation and preliminary waste classification of site soils to inform likely constraints associated with earthworks.

The scope of works included a desktop site history review and sampling of soils from 11 boreholes drilled as part of a concurrent geotechnical investigation. Two groundwater monitoring wells were installed as part of the PSI

At the time of the Opus investigation, the land was used as a car park. The site history review indicated that the site was used for residential purposes from as early as 1944. The site was then redeveloped in the early 1960s to be used as a thoroughfare and later car parking. The site inspection undertaken as part of the assessment identified a disused mechanical workshop and a service station located on Lowe Street and adjoining the site.

A preliminary conceptual site model (CSM) was prepared for the site which identified potential fill and diffused impacts from the off-site service station and workshop as areas of environmental concern. The results of the sampling indicated that the concentration of hydrocarbons in one sample exceeded the ecological screening level (ESL). The sample was collected from borehole BH4, located approximately 35 m east of the service station, at a depth of 6.5 m below ground level.

Opus considered that although the result was marginally above the ESL it was a concern that contamination at this depth had not been adequately assessed and that further investigation of the site in the form of a detailed site investigation would be required. It is not known whether further investigation of this parcel of land has been undertaken.

7.2 Preliminary Soil Contamination Assessment Ballpark Environmental, 2019

D&N Geotechnical Pty Ltd (D&N) were engaged by QPRC to undertake a preliminary Soil Contamination Assessment (SCA) of part Lot 2 DP1179998 (land immediately to the north of the eastern portion of the site currently under investigation). Ballpark Environmental Pty Ltd (Ballpark) were engaged by D&N to review the laboratory results and prepare the SCA report.

The objective of the work was to provide a preliminary assessment of soil and groundwater contamination and, if required, provide a basis for a more detailed site investigation. The scope of works included drilling five boreholes in conjunction with a geotechnical investigation at the site to a maximum depth of 14.4 m bgl and collection and analysis of soil samples. In addition, a groundwater monitoring well was installed in one of the boreholes to allow for groundwater monitoring.

Ballpark reviewed Opus (2017) prior to undertaking the work and targeted the potential smear zone that may be associated with the hydrocarbon contamination previously identified by Opus.

The results of the field work indicated that fill material was present at the site at thicknesses ranging between 0.8 m and 2.0 m. The fill was noted to contain anthropogenic inclusions comprising traces of plastic, terracotta and concrete debris. The fill was underlain by alluvium comprising sandy silt, or silty clay and silty or gravelly sand, beneath which was bedrock comprising interbedded siltstone, mudstone and sandstone. Groundwater inflow was noted during drilling at depths of between approximately 6.6 m and 7.0 m bgl.

The results of the laboratory analysis of soil samples indicated that reported concentrations of contaminants of potential concern (CoPC) were below the adopted site assessment criteria based on a commercial/industrial land use. The results of the laboratory analysis of groundwater samples indicated that reported concentrations of copper exceeded the groundwater investigation limits (GIL) and that concentrations of toluene and total recoverable hydrocarbons (>C_6-C_{10}) were reported above the laboratory limit of reporting but below the assessment criteria.

Ballpark concluded that there was a low risk from soil or groundwater contamination to human health based on a commercial/industrial end-use of the site and that the site was suitable for its proposed ongoing land use.

DP notes that the site currently under investigation is proposed to be developed for a more sensitive land use (high density residential) than the sites to the north previously assessed by Opus (2017) and Ballpark (2019). It is also noted that only one groundwater monitoring well was installed by Ballpark (2019) and that only two groundwater monitoring wells were installed by Opus (2017) . Therefore, a groundwater flow direction was not identified. Given the presence of the Queanbeyan River approximately 250 m to the east/south-east of the site, it is considered possible that the site is situated hydraulically down-gradient from the previously identified Service Station located on Lowe Street.

8. Site Walkover

8.1 Observations

A site walkover was undertaken by an environmental scientist on 19 November 2021. The general site topography was consistent with that described in Section 5. The site layout appears to have remained unchanged from the 2020 aerial photograph. The following key site features pertinent to the PSI were observed (refer to photographs in Appendix E).

- The site is relatively flat and comprised of a number of single and two storey buildings;
- The buildings were predominantly used for commercial office space, access to the buildings was not available at the time of the site inspection;

- A series of asphalt or gravel car parks were present across the site and some landscaped areas were also present;
- A building site was present to the north of the site. It is understood that this is for the construction of new QPRC administration offices and is the land assessed by Ballpark (2019);
- There was no evidence of former creek lines, stressed or stained vegetation or odorous soils;
- There was no evidence of underground storage tanks; and
- There was no evidence of chemical storage.

9. Preliminary Conceptual Site Model

A conceptual site model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or the future i.e. it enables an assessment of the potential source – pathway – receptor linkages (complete pathways).

Potential Sources

Based on the current investigation, the following potential sources of contamination and associated contaminants of potential concern (COPC) have been identified.

- S1: Fill: Associated with levelling, demolition of former buildings on the site and potential burying of waste as evidenced in the site's environment protection licences.
  - COPC include metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), organochlorine pesticides (OCP), phenols and asbestos.
- S2: Service Station and former workshop located potentially upgradient of the site - USTs and associated pipework and bowsers.
  - COPC include lead, TRH, BTEX, PAH, and volatile organic compounds (VOC).

Potential Receptors

The following potential human receptors have been identified:

- R1: Current users [commercial workers, library users];
- R2: Construction and maintenance workers;
- R3: End users [residents, commercial workers]; and
- R4: Adjacent site users [residents, commercial workers, patrons].

The following potential environmental receptors have been identified:

- R5: Surface water [Queanbeyan River]; and
- R6: Groundwater.

Given the location of the site within Queanbeyan CBD, terrestrial ecosystems have not been considered as a potential receptor. Following development, it is assumed that any landscaping will involve importation of appropriate soil media to site.

Potential Pathways

The following potential pathways in relation to human receptors have been identified:

- P1: Ingestion and dermal contact;
- P2: Inhalation of dust and/or vapours;

The following potential pathways in relation to the environmental receptors have been identified:

- P3: Surface water run-off;
- P4: Lateral migration of groundwater providing base flow to water bodies; and
- P5: Leaching of contaminants and vertical migration into groundwater.

Summary of Potentially Complete Exposure Pathways

A 'source–pathway–receptor' approach has been used to assess the potential risks of harm being caused to human or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways (potential complete pathways). The possible pathways between the above sources (S1 and S2) and receptors (R1 to R6) are provided in below Table 3.

Table 3: Summary of Potentially Complete Exposure Pathways

Source and COPC	Transport Pathway	Receptor	Risk Management Action
S1: Fill, Metals, TRH, BTEX, PAH, OCP and asbestos	P1: Ingestion and dermal contact P2: Inhalation of dust and/or vapours	R1: Current users [commercial workers, library users] R2: Construction and maintenance workers R3: End users [residents, commercial workers]	An intrusive investigation is recommended to assess possible contamination including testing of the soils and groundwater.
	P2: Inhalation of dust and/or vapours	R4: Adjacent site users [residents, commercial workers, patrons].	
	P3: Surface water run-off P4: Lateral migration of groundwater providing base flow to water bodies	R5: Surface water [Queanbeyan River]	

Source and COPC	Transport Pathway	Receptor	Risk Management Action
	P5: Leaching of contaminants and vertical migration into groundwater	R6: Groundwater	
S2: USTs, Lead, TRH, BTEX, PAH, and VOC	P1: Ingestion and dermal contact P2: Inhalation of dust and/or vapours	R1: Current users [commercial workers, library users] R2: Construction and maintenance workers R3: End users [residents, commercial workers]	An intrusive investigation is recommended to assess possible contamination including testing of the soils and groundwater.
	P2: Inhalation of dust and/or vapours	R4: Adjacent site users [residents, commercial workers, patrons].	
	P3: Surface water run-off P4: Lateral migration of groundwater providing base flow to water bodies	R5: Surface water [Queanbeyan River]	
	P5: Leaching of contaminants and vertical migration into groundwater	R6: Groundwater	

10. Sampling, Analysis and Quality Plan

The PSI was devised with reference to the seven-step data quality objective (DQO) process which is provided in Appendix B Schedule B2, NEPC (2013). The DQO process is outlined in Appendix F.

10.1 Soil Sampling Rationale

Based on the CSM and DQO, it was considered that five locations placed in an approximate grid pattern and undertaken concurrently with the geotechnical investigation, would be appropriate to provide information regarding the contamination status of the site. It is noted that for a site of approximately 5,850 m^2 in size, the NSW EPA Sampling Design Guidelines (1995) recommends a minimum number of sampling locations of between 13 and 15 locations. Given the preliminary nature of the assessment for due diligence purposes, it was considered that five locations will provide a preliminary indication of the potential for contamination to be present at the site.

The borehole locations are shown on Drawing 2, Appendix A.

Soil samples were collected from each borehole at depths of approximately 0.1 m, 0.5 m, 1.0 m and every 1.0 m thereafter, and changes in lithology or signs of contamination. Samples were collected

targeting the soil strata that previous environmental works had identified contamination (e.g. the general sampling methods are described in the field work methodology, included in Appendix G.

11. Site Assessment Criteria

The site assessment criteria (SAC) applied in the current investigation were informed by the CSM (Section 7) which identified human and environmental receptors to potential contamination on the site. Analytical results were assessed (as a Tier 1 assessment) against the SAC comprising primarily the investigation and screening levels of Schedule B1 of NEPC (2013).

The investigation and screening levels applied in the current investigation comprise a high-density residential use scenario, considered appropriate for the proposed mixed use development of commercial space on the ground floor with high density residential units. The derivation of the SAC is included in Appendix H and the adopted SAC are listed on the summary analytical results tables in Appendix I.

12. Field Work Results

12.1 Ground Conditions

Details of the subsurface conditions encountered are presented in the borehole logs included in Appendix J. The logs must be read in conjunction with the attached notes that define classification methods and terms used to describe the soils and rocks. The succession of strata is broadly summarised below:

- PAVEMENT MATERIALS: 20 mm to 40 mm of asphalt in Bores 1, 2 and 5 then road base gravel in Bores 1 and 2 to depths of 0.6 m and 0.4 m, respectively.
- FILL: clayey, sandy or silty fill with some gravel was encountered in Bores 3, 4, 5 to depths of 0.2 m to 0.9 m depth.
- TOPSOIL: sandy silty clay and clayey silt topsoil fill with rootlets in Bores 3 and 4 to 0.05 m. Natural topsoil was encountered below a layer of fill in Bore 3 to 0.3 m depth.
- SANDY SILT: low plasticity sandy silt was encountered in Bore 4 as a 0.8 m thick bed from 3.1 m depth and Bore 5 to 1.3 m depth.
- SILTY CLAY/SANDY CLAY/CLAYEY SILT: variably firm to hard, low to medium plasticity, silty clay, clayey silt and sandy clay in all bores to depths of 4.2 m to 6.8 m.
- GRAVEL/SAND: variably loose to dense sand and gravel with varying amounts of silt and clay and possible cobble sand boulders in Bores 2 – 5. Collapse of the borehole side wall was encountered in Bore 3 at 8.0 m depth which made the SPT at this depth not possible. It is also noted that the sand/gravel in Bores 3 and 4 were interbedded with the clays.
- SANDSTONE/SILTSTONE: the bedrock generally ranged from medium to high strength, moderately to slightly weathered with some weaker seams initially. The bedrock was encountered below depths of 4.2 m to 12.15 m to the termination depths of 13.1 m to 18.0 m. Very high and extremely high strength rock was encountered in Bore 2.

12.2 Groundwater

During the field work, groundwater was encountered in boreholes BH2 to BH5 between depths of 6.5 m to 6.8 m bgl. Boreholes in which piezometers were installed as part of the geotechnical investigation were purged following drilling. The elevations of the piezometers were surveyed using differential GPS.

Depths to groundwater was measured following approximately one week after installation of piezometers in boreholes BH1 to BH3. The details of depths to groundwater are presented in Table 4.

Table 4: Groundwater Details

Bore	Groundwater Depth and Estimated Reduced Level	
	19 November 2021	
	Depth (m)	RL (m)
1	5.5	570.3
2	5.6	569.2
3	6.2	569.0

It should be noted that groundwater conditions rarely remain constant and can change seasonally due to variations in rainfall and other factors.

It is noted that the piezometers were installed as part of the geotechnical investigation in order to assess the potential for groundwater ingress during basement excavation. No groundwater quality testing was undertaken as part of the agreed scope of works. Groundwater quality testing undertaken during Ballpark (2019) on the site to the north of the site under investigation indicated that concentrations of hydrocarbons were below the site assessment criteria. Nevertheless, should groundwater require disposal during construction, confirmation of the groundwater quality may be required prior to disposal.

12.3 Groundwater Flow Direction

Based on the groundwater elevations measured in the piezometers installed in boreholes BH1 to BH3, the groundwater flow direction was estimated. Based on the recorded information, the groundwater flow direction is inferred to be towards the south.

Groundwater contours and flow direction are presented on Drawing 3, Appendix A.

It is noted that based on the inferred flow direction, the site is considered to be cross-gradient from the service station located on Lowe Street (located to the west of the site) that was considered to be a potential source of the hydrocarbon concentrations identified by Opus (2017).

12.4 Contamination Observations

There were no observations of visual or olfactory evidence (e.g.: staining, odours, free phase product) to suggest the presence of contamination within the soil observed in the investigation.

12.5 Laboratory Analytical Results

The laboratory certificate of analysis together with the chain of custody and sample receipt information is provided in Appendix J.

The results of laboratory analysis are summarised in the following tables in Appendix I:

- Table I1: Summary of Laboratory Results – Metals, TRH, BTEX, PAH; and
- Table I2: Summary of Laboratory Results – OCP, OPP, PCB and Asbestos.

13. Discussion

13.1 Soils

Analytical results of soil samples were all within the adopted health-based (i.e. HIL-B / HSL-A/B) and management limits for high density residential land use.

13.2 Data Quality Assurance and Quality Control

The data quality assurance and quality control (QA/QC) results are included in Appendix K and the relative percentage difference results for intra-laboratory replicates are included in Appendix L. Based on the results of the field QA and field and laboratory QC, and evaluation against the data quality indicators (DQI) it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

14. Revised Conceptual Site Model

The CSM presented in Section 8 has been updated to incorporate the findings of this PSI.

A 'source-pathway-receptor' approach has been used to assess the potential risks of harm being caused to human, water or environmental receptors from contamination sources on or in the vicinity of the site, via transport pathways (complete pathways).

Table 5: Refined Summary of Potentially Complete Exposure Pathways

Source and COPC	Transport Pathway	Receptor	Risk Management Action
S1: Fill, Metals, TRH, BTEX, PAH, OCP and asbestos	P1: Ingestion and dermal contact P2: Inhalation of dust and/or vapours	R1: Current users [commercial workers, library users] R2: Construction and maintenance workers	The results of the field work indicated that fill material was present in some portions of the site.

Source and COPC	Transport Pathway	Receptor	Risk Management Action
		R3: End users [residents, commercial workers]	The results of laboratory analysis indicated that concentrations of CoPC were below the site assessment criteria. It is considered that this exposure pathway is not complete. Should fill material require off-site disposal, it should be assessed in accordance with NSW EPA (2014) Waste Classification Guidelines – Part 1: Classifying Waste.
	P2: Inhalation of dust and/or vapours	R4: Adjacent site users [residents, commercial workers, patrons].	
	P3: Surface water run-off P4: Lateral migration of groundwater providing base flow to water bodies	R5: Surface water [Queanbeyan River]	
	P5: Leaching of contaminants and vertical migration into groundwater	R6: Groundwater	
S2: USTs, Lead, TRH, BTEX, PAH, and VOC	P1: Ingestion and dermal contact P2: Inhalation of dust and/or vapours	R1: Current users [commercial workers, library users] R2: Construction and maintenance workers R3: End users [residents, commercial workers]	The result of the laboratory analysis indicated that concentrations of CoPC were below the site assessment criteria. Monitoring of the piezometers installed in boreholes BH1 to BH3 indicated that the inferred groundwater flow direction was to the south and that the site can be considered to be cross gradient from the identified off-site service station. DP considers it unlikely that the off-site hydrocarbon impacts identified by Opus (2017) would be impacted the site.
	P2: Inhalation of dust and/or vapours	R4: Adjacent site users [residents, commercial workers, patrons].	
	P3: Surface water run-off P4: Lateral migration of groundwater providing base flow to water bodies	R5: Surface water [Queanbeyan River]	
	P5: Leaching of contaminants and vertical migration into groundwater	R6: Groundwater	

15. Conclusions and Recommendations

Douglas Partners Pty Ltd (DP) has been engaged by The Village Building Co Ltd to complete this preliminary site investigation (contamination) (PSI) undertaken for a proposed apartment building for the site at 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan (the site).

The objective of the PSI was to assess the potential for contamination at the site based on past and present land uses, to comment on the need for further investigation and/or management and to comment on the suitability of the site for the proposed development from a contamination perspective.

Based on the current investigation, the following potential sources of contamination and associated contaminants of potential concern (COPC) have been identified.

- S1: Fill: Associated with levelling, demolition of former buildings on the site and potential burying of waste as evidenced in the site's environment protection licences.
  - COPC include metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), organochlorine pesticides (OCP), phenols and asbestos.
- S2: Service Station and former workshop located potentially upgradient of the site - USTs and associated pipework and bowsers.
  - COPC include lead, TRH, BTEX, PAH, and volatile organic compounds (VOC).

The results of the field work indicated that fill material was present at the site and that depths to groundwater ranged between 5.5 m to 6.2 m bgl. Groundwater flow direction was inferred to be towards the south.

Analytical results of soil samples were all within the adopted health-based (i.e. HIL-B / HSL-A/B) and management limits for high density residential land use.

DP considers that the site is suitable for use as high density residential units, from a site contamination perspective, subject to the following measures during any future development works:

- Should any fill or stockpiled material be required to be disposed off-site, they must first be assessed in accordance with NSW EPA Waste Classification Guidelines Part 1 Classifying Waste (2014) and assigned a waste classification prior to off-site disposal;
- Should groundwater require disposal during construction, groundwater quality should be confirmed by testing to ensure the receiving environment is not impacted; and
- A Construction Environment Management Plan should be prepared prior to construction including an 'unexpected finds protocol' (i.e. asbestos in fill, buried waste or hydrocarbon affected soils including staining and odours and evidence of heavy pesticide use) and implemented during potential future site works.

16. References

Ballpark Environmental Pty Ltd. (2019). *Preliminary Soil Contamination Assessment, 257 Crawford Street, Queanbeyan NSW 2620.*

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM].* Australian Government Publishing Services Canberra: National Environment Protection Council.

NSW EPA. (2020). *Guidelines for Consultants Reporting on Contaminated Land.* Contaminated Land Guidelines: NSW Environment Protection Authority.

Opus International Consultants (Australia) Pty Ltd. (2017). *Preliminary Site Investigation, Proposed Queanbeya Headquarters Administration Building.*

17. Limitations

Douglas Partners (DP) has prepared this report for this project at 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan in accordance with DP's proposal dated 2 November 2021 and acceptance received from Jamie Cregan dated 3 November 2021. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of The Village Building Co Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

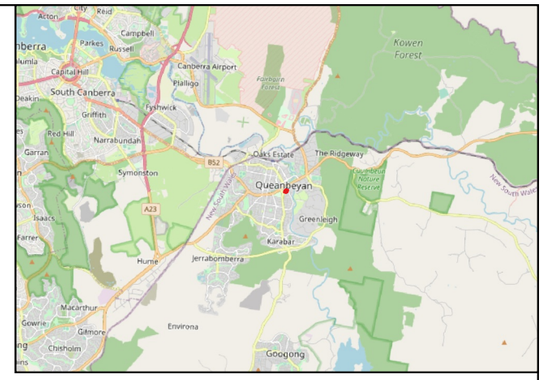
This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Douglas Partners Pty Ltd

Appendix A

Drawings



LOCALITY MAP

Notes:
1. Basemap from metromap.com (dated 19/04/2021)

Legend

- Approximate Site Boundary
- Service Station Location

0 25 50 75 m

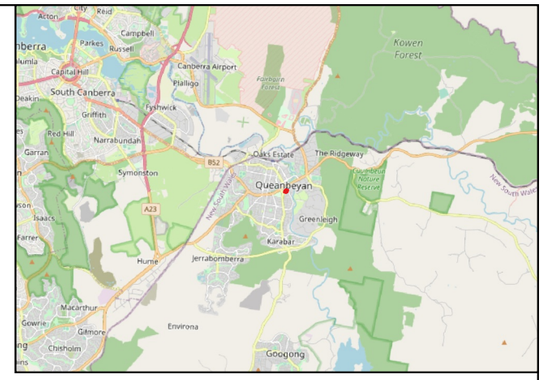
Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	The Village Building Co Ltd		
OFFICE:	Canberra	DRAWN BY:	PJS
SCALE:	1:1250 @ A3	DATE:	23.11.2021

TITLE: **Site Location and Site Layout Plan**
Proposed Apartment Building
6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

N

PROJECT No:	210506.01
DRAWING No:	1
REVISION:	0



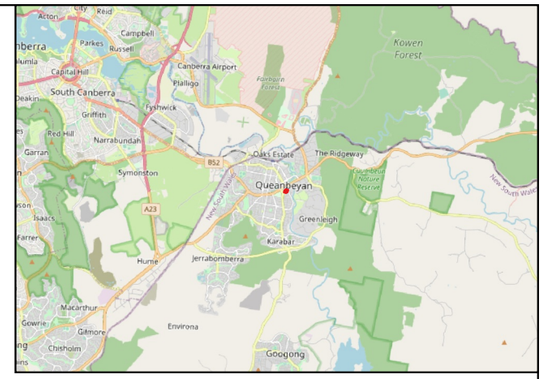
LOCALITY MAP

Notes:
1. Basemap from metromap.com (dated 19/04/2021)
2. Borehole locations shown are approximate only

Legend
- Approximate Site Boundary
- Approximate Borehole Location

0 10 20 30 m

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT: The Village Building Co Ltd	TITLE: **Boehole Location Plan**	PROJECT No: 210506.01
	OFFICE: Canberra / DRAWN BY: PJS	**Proposed Apartment Building**	DRAWING No: 2
	SCALE: 1:500 @ A3 / DATE: 23.11.2021	**6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan**	REVISION: 0



LOCALITY MAP

Notes:
1. Basemap from metromap.com (dated 19/04/2021)
2. Borehole locations shown are approximate only

Legend
- Approximate Site Boundary
- Approximate Borehole Location
- Groundwater Contour

0 10 20 30 m

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	The Village Building Co Ltd		
OFFICE:	Canberra	DRAWN BY:	PJS
SCALE:	1:500 @ A3	DATE:	23.11.2021

TITLE: **Groundwater Elevation Plan**
Proposed Apartment Building
6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

N

PROJECT No:	210506.01
DRAWING No:	3
REVISION:	0

Appendix B

About This Report

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

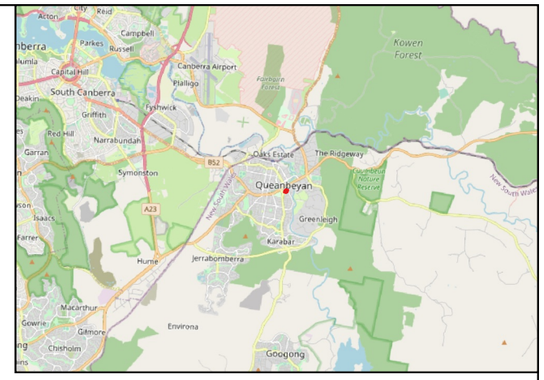
Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

Appendix C

Site History Searches



LOCALITY MAP

Notes:
1. Basemap from metromap.com (dated 19/04/2021)

Legend

- Approximate Site Boundary
- Contaminated Sites Notified to NSW EPA

0 200 400 600 m

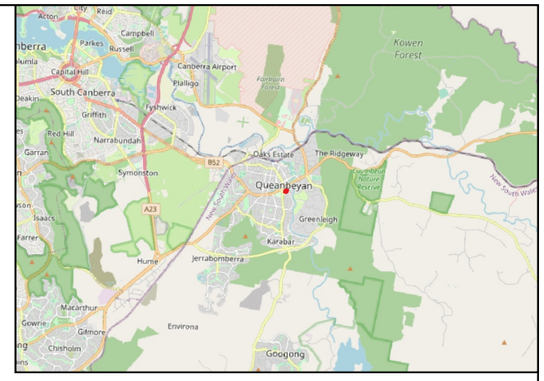
Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	The Village Building Co Ltd		
OFFICE:	Canberra	DRAWN BY:	PJS
SCALE:	1:9500 @ A3	DATE:	19.11.2021

TITLE: **Contaminated Sites Notified to NSW EPA**
Proposed Apartment Building
6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

N

PROJECT No:	210506.01
DRAWING No:	C2
REVISION:	0



LOCALITY MAP

Notes:
1. Basemap from metromap.com (dated 19/04/2021)

Legend

- Approximate Site Boundary
- Approximate Groundwater Bore Location

0 200 400 600 m

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT: The Village Building Co Ltd	TITLE: **Registered Groundwater Bore LocationPlan**	PROJECT No: 210506.01
	OFFICE: Canberra / DRAWN BY: PJS	**Proposed Apartment Building**	DRAWING No: C1
	SCALE: 1:9500 @ A3 / DATE: 18.11.2021	**6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan**	REVISION: 0

WaterNSW
Work Summary

GW403854

Licence: | **Licence Status:**

Authorised Purpose(s):
Intended Purpose(s): RECREATION (GROU

Work Type: Bore
Work Status: New Bore
Construct.Method: Rotary - Percu
Owner Type: Local Govt

Commenced Date: | **Final Depth:** 80.00 m
Completion Date: 13/11/2007 | **Drilled Depth:** 80.00 m

Contractor Name: Competitive Drilling Services
Driller: William Maurice Brown
Assistant Driller: Kurt Toshack

Property: | **Standing Water Level (m):** 12.000
GWMA: | **Salinity Description:**
GW Zone: | **Yield (L/s):** 1.430

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:			
Licensed:	MURRAY	QUEANBEYAN	6 1116082

Region: 40 - Murrumbidgee | **CMA Map:** 8727-3N
River Basin: 410 - MURRUMBIDGEE RIVER | **Grid Zone:** | **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) | **Northing:** 6085230.000 | **Latitude:** 35°21'20.4"S
Elevation Source: Unknown | **Easting:** 702706.000 | **Longitude:** 149°13'51.3"E

GS Map: - | **MGA Zone:** 55 | **Coordinate Source:** GIS - Geogra

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	80.00	200			Rotary - Percussion (Down Hole H
1		Annulus	Waterworn/Rounded	0.00	80.00				Graded, Q:1.000m3, PL:Poured/Shovelled
1	1	Casing	Pvc Class 9	9.00	80.00	159	143		Seated on Bottom, Riveted and Glued
1	1	Opening	Slots - Horizontal	36.00	42.00	150		0	Casing - Machine Slotted, PVC Class 9, Riveted and Glued, SL: 20.0mm, A: 5.00mm
1	1	Opening	Slots - Horizontal	68.00	74.00	150		0	Casing - Machine Slotted, PVC Class 9, Riveted and Glued, SL: 20.0mm, A: 5.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
38.50	39.00	0.50	Unknown	12.00		0.43			
72.10	73.00	0.90	Unknown			1.00		04:00:00	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	TOPSOIL	Topsoil	
1.00	8.00	7.00	CLAY	Clay	
8.00	18.00	10.00	SHALE - WEATHERED	Shale	
18.00	80.00	62.00	SHALE - GREY	Shale	

Remarks

13/11/2007: Form A Remarks:
ENTERED BY PATRICIA EWERS 13TH NOVEMBER 2007.

INFORMATION NOT INCLUDED ON FORM:

NO INFORMATION ON DRAWDOWN LEVEL
NO INFORMATION ON SALINITY AND WATER TASTE
NO INFORMATION ON PUMPING TESTS ON BORE COMPLETION
NO INFORMATION ON WHO CHOSE BORE LOCATION

***** End of GW403854 *****

WaterNSW
Work Summary

GW404605

Licence: **Licence Status:**

Authorised Purpose(s):
Intended Purpose(s): RECREATION - LOW

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Rotary - Air/F
Owner Type: Private

Commenced Date: **Final Depth:** 140.00 m
Completion Date: 21/09/2007 **Drilled Depth:** 140.00 m

Contractor Name: Bungendore Water Bores
Driller: Daniel Robert Hill
Assistant Driller: Gerrard Hill

Property: **Standing Water Level (m):** 6.000
GWMA: **Salinity Description:**
GW Zone: **Yield (L/s):** 0.813

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:			
Licensed:	MURRAY	QUEANBEYAN	222//560740

Region: 40 - Murrumbidgee **CMA Map:** 8727-3N
River Basin: 410 - MURRUMBIDGEE RIVER **Grid Zone:** **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) **Northing:** 6085257.000 **Latitude:** 35°21'19.7"S
Elevation Source: Unknown **Easting:** 702421.000 **Longitude:** 149°13'39.9"E

GS Map: - **MGA Zone:** 55 **Coordinate Source:** GIS - Geogra

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	7.00	300			Rotary - Air/Foam
1		Hole	Hole	7.00	140.00	200			Rotary - Air/Foam
1		Annulus	Waterworn/Rounded	0.00	140.00				Graded, Q:2.000m3
1	1	Casing	Pvc Class 9	-2.00	140.00	160	152		Driven into Hole, Screwed and Glued
1	1	Opening	Slots - Vertical	54.00	128.00	160		0	Casing - Hand Sawn Slot, PVC Class 9, Screwed and Glued, SL: 150.0mm, A: 2.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
58.00	60.00	2.00	Unknown	6.00		0.19			
75.00	77.00	2.00	Unknown	6.00		0.25			
120.00	122.00	2.00	Unknown	6.00		0.44		03:00:00	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	4.00	4.00	SOIL - BROWN - CLAYS	Soil	
4.00	10.00	6.00	QUARTZITE - BROWN - SOFT	Quartzite	
10.00	13.00	3.00	LOAM - SANDY	Loam	
13.00	34.00	21.00	QUARTZ - WHITE	Quartz	
34.00	58.00	24.00	SHALE - GREY	Shale	
58.00	140.00	82.00	DACITE - GREY AND BLACK	Dacite(Tonalite)	

Remarks

21/09/2007: Form A Remarks:
ENTERED BY PATRICIA EWERS ON 14TH JULY 2008.

***** End of GW404605 *****

WaterNSW
Work Summary

GW405060

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): RECREATION (GROU

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Rotary Air
Owner Type: Other Govt

Commenced Date:
Completion Date: 11/11/2008
Final Depth: 60.30 m
Drilled Depth: 60.30 m

Contractor Name: (None)
Driller: Gordon Noel Briggs
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m): 4.000
Salinity Description:
Yield (L/s): 11.000

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:			
Licensed:	MURRAY	QUEANBEYAN	7047//1125721

Region: 40 - Murrumbidgee
River Basin: 410 - MURRUMBIDGEE RIVER
Area/District:
CMA Map: 8727-3N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6085645.000
Easting: 702594.000
Latitude: 35°21'07.0"S
Longitude: 149°13'46.5"E

GS Map: -
MGA Zone: 55
Coordinate Source: GIS - Geogra

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	9.10	230			Rotary Air
1		Hole	Hole	9.10	60.30	178			Down Hole Hammer
1	1	Casing	Pvc Class 9	-0.30	60.30	163			Seated on Bottom, Glued
1	1	Opening	Slots - Vertical	15.00	60.00	163		0	Slotted In Hole, PVC Class 9, Glued, SL: 80.0mm, A: 2.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
6.00	9.10	3.10	Unknown	4.50					
13.70	42.60	28.90	Unknown	4.50					
51.80	60.30	8.50	Unknown	4.50		11.00			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

0.00	6.00	6.00	CLAY - BROWN	Clay	
6.00	9.10	3.10	GRAVEL - COARSE RIVER	Gravel	
9.10	13.70	4.60	SHALE - SOFT	Shale	
13.70	18.20	4.50	SHALE - RED	Shale	
18.20	42.60	24.40	SHALE - DARK BLUE - SOME FAULTED ZONES	Shale	
42.60	51.80	9.20	SHALE - DARK BLUE	Shale	
51.80	57.90	6.10	SHALE - LIGHT GREY WITH FAULTED ZONES	Shale	
57.90	60.30	2.40	SHALE - LIGHT GREY - HEAVY FAULTED ZONE	Shale	

Remarks

11/11/2008: Form A Remarks:
ENTERED BY PATRICIA EWERS ON 24TH SEPTEMBER 2009.

INFORMATION NOT PROVIDED ON FORM A:

NO INFORMATION ON DRAWDOWN LEVEL
NO INFORMATION ON SALINITY OR WATER TASTE
NO INFORMATION ON PUMPING TESTS ON BORE COMPLETION
NO DETAILS ON GRAVEL PACK

***** End of GW405060 *****

QUEANBEYAN-PALERANG REGIONAL COUNCIL
Planning Certificate issued under Section 10.7(2&5)
Environmental Planning and Assessment Act 1979

Certificate No.: PL.2021.3154
Your Reference: 210506.01
Date of Issue: 08 November 2021

Douglas Partners Pty Ltd
2/73 Sheppard Street
HUME ACT 2609

elliott.luck@douglaspartners.com.au

Property Number	155824
Property Address:	257 Crawford Street QUEANBEYAN NSW 2620
Legal Description:	Lot 2 DP 1179998

This certificate is provided under Section 10.7(2&5) of the Act. At the date of this certificate, the subject land is affected by the following matters.

Notes:

(a) The information in this certificate only relates to the real property identifier associated with the property and not to any licence or permissive occupancy that may be attached to and included in the property details contained in the description of the land.

(b) The *Environmental Planning and Assessment Act 1979* will be referred to in this Certificate as 'the Act'.

Disclaimer:

This certificate contains information provided to Council by third parties and is as current as the latest information available to Council at the time of production of this document. Council does not warrant the accuracy of the information contained within the information provided by third parties and has not independently verified the information. It is strongly recommended that you contact the relevant third parties to confirm the accuracy of the information.

1.Names of relevant instruments and development control plans

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Queanbeyan Local Environmental Plan 2012 **and State Environmental Planning Policies (SEPPs) that may apply to the carrying out of development on the land:**

- *State Environmental Planning Policy No 21 – Caravan Parks*
- *State Environmental Planning Policy No 33 – Hazardous and Offensive Development*
- *State Environmental Planning Policy No 36 – Manufactured Home Estates*
- *State Environmental Planning Policy No 50 – Canal Estate Development*
- *State Environmental Planning Policy No 55 – Remediation of Land*
- *State Environmental Planning Policy No 64 – Advertising and Signage*
- *State Environmental Planning Policy No 65 – Design Quality of Residential Apartment Development*
- *State Environmental Planning Policy No 70 – Affordable Housing (Revised Schemes)*
- *State Environmental Planning Policy (Affordable Rental Housing) 2009*
- *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004*
- *State Environmental Planning Policy (Concurrences and Consents) 2018*
- *State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017*
- *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*
- *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004*
- *State Environmental Planning Policy (Infrastructure) 2007*
- *State Environmental Planning Policy (Koala Habitat Protection) 2021*
- *State Environmental Planning Policy (Mining, Petroleum Production & Extractive Industries) 2007*
- *State Environmental Planning Policy (Primary Production and Rural Development) 2019*
- *State Environmental Planning Policy (State and Regional Development) 2011*
- *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017*

www.legislation.nsw.gov.au/#/browse/inForce/EPIs/S
www.legislation.nsw.gov.au/#/view/EPI/2012/576/full

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Planning Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Yes: Draft Queanbeyan-Palerang Local Environmental Plan 2020
www.planningportal.nsw.gov.au/ppr/finalisation/queanbeyan-palerang-regional-council-comprehensive-lep

Yes. State Environmental Planning Policies (SEPPs) that have been the subject of community consultation or on public exhibition under the Act that may apply to the carrying out of development on the land:

- Draft State Environmental Planning Policy (Environment)
- Draft State Environmental Planning Policy (Housing Diversity) 2020
- Remediation of Land State Environmental Planning Policy
- State Environmental Planning Policy No 21 — Caravan Parks
- State Environmental Planning Policy No 33 – Hazardous and Offensive Development
- State Environmental Planning Policy No 36 — Manufactured Home Estates
- State Environmental Planning Policy No 55 — Remediation of Land
- State Environmental Planning Policy No 65 – Design Quality of Residential Apartment Development
- State Environmental Planning Policy No 70 — Affordable Housing (Revised Schemes)
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- State Environmental Planning Policy (Housing) 2021
- State Environmental Planning Policy (Infrastructure) 2007
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- State Environmental Planning Policy (Primary Production and Rural Development) 2019
- State Environmental Planning Policy (State and Regional Development) 2011

www.planningportal.nsw.gov.au/draftplans

(3) The name of each development control plan that applies to the carrying out of development on the land:

Lot 2 DP 1179998 **Queanbeyan Development Control Plan 2012**
www.qprc.nsw.gov.au/Building-Development/Planning-Zoning/Planning-controls#section-3

2. Zoning and land use under relevant LEPs

(a) Identity of the zone:

Lot 2 DP 1179998 **B3 Commercial Core**

B3 Commercial Core - *Queanbeyan Local Environmental Plan 2012*

(b) Permitted without consent

Nil.

(c) Permitted with consent

Centre-based child care facilities; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Medical centres; Oyster aquaculture; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Tank-based aquaculture; Any other development not specified in item (b) or (d).

(d) Prohibited

Agriculture; Air transport facilities; Airstrips; Attached dwellings; Backpackers' accommodation; Bed and breakfast accommodation; Biosolids treatment facilities; Boat building and repair facilities; Boat launching ramps; Boat sheds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Dual occupancies; Dwelling houses; Eco-tourist facilities; Electricity generating works; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Farm stay accommodation; Forestry; Freight transport facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Hostels; Industrial retail outlets; Industries; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Multi dwelling housing; Open cut mining; Pond-based aquaculture Recreation areas; Recreation facilities (major); Recreation facilities (outdoor); Research stations; Residential flat buildings; Resource recovery facilities; Rural industries; Rural workers' dwellings; Secondary dwellings; Semi-detached dwellings; Seniors housing; Service stations; Sewage treatment plants; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste disposal facilities; Water recreation structures; Water recycling facilities; Water supply systems.

Note: Demolition of a building or work requires consent under clause 2.7 of the applicable Local Environmental Plan.

Listed below are any additional site-specific permitted uses (only with development consent) from the schedule of the relevant Local Environmental Plan cited in clause 1(1) of this certificate. Note that for multi lot titles, the additional uses may apply only to particular lots.

Lot 2 DP 1179998 **There are no additional uses permitted on this land.**

(e) Minimum land dimensions for the erection of a dwelling house on the land fixed by development standards applying to the land:

Lot 2 DP 1179998 **Not applicable. A new dwelling is prohibited on the land.**

(f) Whether the land includes or comprises critical habitat:

Lot 2 DP 1179998 **No. None of the land includes or comprises critical habitat.**

(g) Whether the land is in a conservation area:

Lot 2 DP 1179998	**No. The land is not in a Heritage Conservation Area or a State Conservation Area.**

(h) Whether an item of environmental heritage is situated on the land:

Lot 2 DP 1179998	**Yes. Council is aware of two items of local environmental heritage that are located on the land.**

2A. Zoning and land use under *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*

Whether the land is within any zone under:

(a) Part 3 of the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* or

(b) A Precinct Plan (within the means of the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* or

(c) A proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act.

Not applicable.

3. Complying Development

(1) Whether or not the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

(2) If complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy, the reasons why it may not be carried out under these clauses.

Lot 2 DP 1179998

Yes. Under NSW legislation [*State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*] and council records, complying development may be able to be carried out on this land under the following codes:

- **Housing Alterations Code (Part 4)**
- **General Development Code (Part 4A)**
- **Commercial and Industrial Alterations Code (Part 5)**
- **Commercial and Industrial (New Buildings and Additions) Code (Part 5A)**
- **Container Recycling Facilities Code (Part 5B)**
- **Subdivisions Code (Part 6)**
- **Demolition Code (Part 7)**
- **Fire Safety Code (Part 8).**

If complying development under any of these codes above is being considered to be carried out on this land, the applicant is advised to check the provisions of clauses 1.17, 1.17A, 1.18, 1.19 and 1.20 of this policy to confirm that complying development is possible:
https://www.legislation.nsw.gov.au/#/view/EPI/2008/572/full
The 2019 edition of the National Construction Code is effective from 1 May 2019.

The following complying development codes are not applicable to this land:

- **Housing Code (Part 3)**
- **Rural Housing Code (Part 3A)**
- **Low Rise Housing Diversity Code (Part 3B)**
- **Greenfield Housing Code (Part 3C)**
- **Inland Code (Part 3D).**

4, 4A. Repealed

4B. Annual charges under *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works

In relation to a coastal council—whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

No. The land is not affected because it is not located in a coastal council.

5. Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of the *Coal Mine Subsidence Compensation Act 2017.*

No. The land is not proclaimed to be a mine subsidence district within the meaning of the *Coal Mine Subsidence Compensation Act 2017.*

6. Road widening and road realignment

(a) Is the land affected by a road widening or road realignment under Division 2 of Part 3 of the *Roads Act 1993*?

Lot 2 DP 1179998	**No. The land is not affected by a road widening or road realignment under the *Roads Act 1993.***

(b) Is the land affected by any road widening or road realignment under any environmental planning instrument?

Lot 2 DP 1179998	**No. The land is not affected by any road widening or road realignment under any environmental planning instrument.**

(c) Is the land affected by any road widening or road realignment under any resolution of the Council?

Lot 2 DP 1179998	**No. The land is not affected by a road widening or road realignment under a resolution of Council.**

7. Council and other public authority policies on hazard risk restrictions

(a) Is the land affected by a policy adopted by council that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding)?

Yes. All land in QPRC is affected by policies adopted by the council that restricts the development of the land because of the likelihood of contaminated land and bushfire.

Lot 2 DP 1179998	**A Preliminary Soil Contamination Assessment was carried out on the northern half of Lot 2 DP 1179998 where the proposed Queanbeyan Civic and Cultural Precinct would be proceeding. The report prepared by Ballpark Environmental (Ref BPE19094-R01 dated 2 December 2019) confirmed that there was no contamination impacting that portion of the site and that it was suitable for its proposed commercial land use.**

Note: Refer to Clause 11 of this certificate to check if the land is bushfire prone.

(b) Is the land affected by a policy adopted by any other public authority that restricts the development of the land because of the likelihood of landslip, bushfire, tidal inundation, subsidence, acid sulphate or any other risk?

No. Council is not aware of a policy adopted by any other public authority that restricts the development of the land.

7A. Flood related development controls

(1) Whether the land or part of the land is within the flood planning area and is subject to flood related development controls.

Lot 2 DP 1179998	**Yes. The land or part of the land is within the flood planning area and is subject to flood related development controls.**

(2) Whether the land or part of the land is between the flood planning area and the probable maximum flood and is subject to flood related development controls.

Lot 2 DP 1179998	**No.**

8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

Lot 2 DP 1179998	**No. Council is not aware of any environmental planning instrument or proposed environmental planning instrument that makes provision for the acquisition of the land by a public authority.**

9. Contributions plans

The name of each Contributions plan applying to the land.

Lot 2 DP 1179998	**Queanbeyan Section 7.12 Fixed Levy Development Contributions Plan 2019.**
Lot 2 DP 1179998	**Queanbeyan Section 94 Contributions Plan for Extractive Industry 2014.**

www.qprc.nsw.gov.au/Building-Development/Planning-Zoning/Planning-controls#section-6

9A. Biodiversity certified land

Whether the land is biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016.*

Lot 2 DP 1179998	**No. Council has not been notified that the land is biodiversity certified under the *Biodiversity Conservation Act 2016.***

10. Biodiversity stewardship sites

Whether the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016.*

Lot 2 DP 1179998	**No. Council has not been notified that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under the *Biodiversity Conservation Act 2016.***

10A. Native vegetation clearing set asides

Whether the land contains a set aside area under section 60ZC of the *Local Land Services Act 2013*.

Lot 2 DP 1179998	**No. Council has not been notified that the land contains a set aside area or it is registered in the public register under the *Local Land Services Act 2013*.**

11. Bush fire prone land

Whether the land is bush fire prone land.

Lot 2 DP 1179998	**No. The land is not bush fire prone as defined in Section 10.3 of the *Environmental Planning and Assessment Act 1979*.**

12. Property Vegetation Plans

Whether Council has been notified that a property vegetation plan under the *Native Vegetation Act 2003* applies to the land.

Lot 2 DP 1179998	**No. Council has not been notified of a property vegetation plan under the *Native Vegetation Act 2003* that applies to the land.**

13. Orders under *Trees (Disputes Between Neighbours) Act 2006*

Whether Council has been notified whether an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

No. Council has not been notified of order made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

14. Directions under Part 3A

Whether there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

No. Council has not been advised of any Directions by the Minister under section 75P (2) (c1) of the Act.

15. Site compatibility certificates and conditions for seniors housing

Whether there is a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land:

No. Council is not aware of any valid site compatibility certificate (seniors housing) applying to the land.

16. Site compatibility certificates for infrastructure, schools or TAFE establishments

Whether there is a valid site compatibility certificate (infrastructure, schools or TAFE establishments), of which council is aware of in respect of proposed development on the land.

No. Council is not aware of any valid site compatibility certificate (infrastructure, schools or TAFE establishments) applying to the land.

17. Site compatibility certificates and conditions for affordable rental housing

Whether there a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land.

No. Council is not aware of any valid site compatibility certificate (affordable rental housing) applying to the land.

18. Paper subdivision information

The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

No. Council is not aware of any development plan adopted by a relevant authority or any subdivision Order that applies to a paper subdivision of the land as described in Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificate

Whether there is a current site verification certificate in relation to Division 3 of Part 4AA of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* that Council is aware of.

No. Council is not aware of any site verification certificate applying to the land.

20. Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division.

No. Council is not aware of any residential premises on the land that are affected by loose-fill asbestos insulation (Division 1A of Part 8 of the *Home Building Act 1989*) and that are listed on the NSW register that is required to be maintained under that Division.

NSW Fair Trading maintains a NSW Register of homes that are affected by loose-fill asbestos insulation: www.fairtrading.nsw.gov.au/loose-fill-asbestos-insulation-register

Some buildings located in the Queanbeyan-Palerang local government area have been identified as containing loose-fill asbestos insulation (sometimes referred to as "Mr Fluffy" insulation), for example, in the roof space. You should make your own enquiries as to the age of the buildings on the land to which this certificate relates. If the land contains a building constructed prior to 1980, Queanbeyan-Palerang Regional Council strongly recommends that any potential purchaser obtains advice from a licensed asbestos assessor to determine whether loose-fill asbestos is present in any building on the land; and, if so, the health risks (if any) this may pose for the building's occupants. Contact NSW Fair Trading for further information: https://www.fairtrading.nsw.gov.au/housing-and-property/loose-fill-asbestos-insulation

Nothing in this statement relates to information about the presence of bonded asbestos materials such as asbestos cement sheeting that may have been used at this site.

21. Affected building notices and building product rectification orders

(1) Is there any affected building notice of which the council is aware that is in force in respect of the land?

(2) A statement of:

(a) whether there is any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with, and

(b) whether any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

No. Council is not aware of the existence of any affected building notice in force, or building product rectification order, or any notice of intention to make a building product rectification order.

22. *State Environmental Planning Policy (Western Sydney Aerotropolis) 2020*

For land to which *State Environmental Planning Policy (Western Sydney Aerotropolis) 2020* applies, whether the land is:

(a) in an ANEF or ANEC contour of 20 or greater as referred to in clause 19 of that Policy, or

(b) shown on the *Lighting Intensity and Wind Shear Map* under that Policy, or

(c) shown on the *Obstacle Limitation Surface Map* under that Policy, or

(d) in the "public safety area" on the *Public Safety Area Map* under that Policy, or

(e) in the "3 kilometre wildlife buffer zone" or the "13 kilometre wildlife buffer zone" on the *Wildlife Buffer Zone Map* under that Policy.

Not applicable.

Additional Notes

Aircraft Noise

The land is not located within the Australian Noise Exposure Forecast (ANEF) contour of 20 or greater for the Canberra Airport. Land within an ANEF contour of less than 20 is generally regarded as being 'acceptable' for new residential dwellings and other land uses under *Australian Standard AS2021:2015 Acoustics- Aircraft noise intrusion- Building siting and construction*. Further advice in respect of potential aircraft noise impacts is available from Canberra Airport at:
https://www.canberraairport.com.au/corporate/community/aircraft-noise

Additional matters prescribed by section 59(2) of the *Contaminated Land Management Act 1997*

(a) Whether there is land to which a certificate relates regarding significantly contaminated land within the meaning of that Act.

Lot 2 DP 1179998	**No. Council is not aware that the land is significantly contaminated.**

(b) Whether there is land to which a certificate relates regarding being subject to a management order within the meaning of that Act.

Lot 2 DP 1179998	**No. Council is not aware that the land is subject to a management order.**

(c) Whether there is land to which a certificate relates regarding the subject of an approved voluntary management proposal within the meaning of that Act.

Lot 2 DP 1179998	**No. Council is not aware that the land is subject to an approved voluntary management order.**

(d) Whether there is land to which a certificate relates regarding being subject to an ongoing maintenance order within the meaning of that Act.

Lot 2 DP 1179998	**No. Council is not aware that the land is subject to an ongoing maintenance order.**

(e) Whether there is land to which a certificate relates regarding being the subject of a site audit statement within the meaning of that Act.

Lot 2 DP 1179998	**No. Council is not aware that the land is the subject of a site audit statement.**

Additional information provided in accordance with section 10.7(5) of the *Environmental Planning and Assessment Act 1979*

Vegetation Clearing

There are restrictions on the clearing of vegetation on the land.
Refer to:

- ***State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017***
- ***Biodiversity Conservation Act 2016***
- ***Local Land Services Act 2013***
- **relevant Development Control Plan [clause 1(3) of this certificate]**
- **clause 10A of this certificate if a native vegetation set aside area applies**
- **clause 12 of this certificate if a property vegetation plan applies.**

Loose Fill Asbestos

If the land to which this certificate relates contains a building constructed prior to 1980, the Council strongly recommends that any potential purchaser obtain advice from an appropriately qualified expert as to whether loose fill asbestos is present in any building on the land and, if so, the health risks (if any) this may pose for the building's occupants. Prospective purchasers may also wish to ask the current owner if the property has previously been inspected under the NSW WorkCover ceiling insulation testing program. Further information about loose fill asbestos insulation (including information about the NSW WorkCover ceiling insulation testing scheme) can be found at:
http://www.fairtrading.nsw.gov.au/housing-and-property/loose-fill-asbestos-insulation

Road Access in Non-Urban Areas

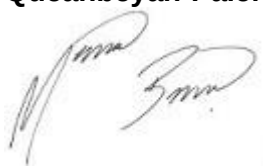
Lot 2 DP 1179998 **Not applicable. The land is located in an urban area.**
https://www.qprc.nsw.gov.au/Services/Roads-and-footpaths

Development Approvals

Some information of previous development applications may be available. Provided there is evidence of ownership or written approval from the landowner, applicants can request to inspect the paper property files of this property at 256 Crawford Street, Queanbeyan NSW. Please allow 1-2 days' notice for Council to retrieve the records after making a telephone call. Applicants can view the property file free-of-charge, with a small fee if the applicant requires paper copies of any record.

ISSUE DETAILS
Certificate No: PL.2021.3154
Checked: ML

M J Thompson
Portfolio General Manager
Natural and Built Character
Queanbeyan-Palerang Regional Council



Per……

08 November 2021

QUEANBEYAN-PALERANG REGIONAL COUNCIL
Planning Certificate issued under Section 10.7(2&5)
Environmental Planning and Assessment Act 1979

Certificate No.: PL.2021.3155
Your Reference: 210506.01
Date of Issue: 08 November 2021

Douglas Partners Pty Ltd
2/73 Sheppard Street
HUME ACT 2609

elliott.luck@douglaspartners.com.au

Property Number	164173
Property Address:	6 Rutledge Street QUEANBEYAN NSW 2620
Legal Description:	Lot 31 DP 771673

This certificate is provided under Section 10.7(2&5) of the Act. At the date of this certificate, the subject land is affected by the following matters.

Notes:

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- *State Environmental Planning Policy (Koala Habitat Protection) 2021*
- *State Environmental Planning Policy (Mining, Petroleum Production & Extractive Industries) 2007*
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www.legislation.nsw.gov.au/#/browse/inForce/EPIs/S
www.legislation.nsw.gov.au/#/view/EPI/2012/576/full

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Planning Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Yes: Draft Queanbeyan-Palerang Local Environmental Plan 2020
www.planningportal.nsw.gov.au/ppr/finalisation/queanbeyan-palerang-regional-council-comprehensive-lep

Yes. State Environmental Planning Policies (SEPPs) that have been the subject of community consultation or on public exhibition under the Act that may apply to the carrying out of development on the land:

- Draft State Environmental Planning Policy (Environment)
- Draft State Environmental Planning Policy (Housing Diversity) 2020
- Remediation of Land State Environmental Planning Policy
- State Environmental Planning Policy No 21 — Caravan Parks
- State Environmental Planning Policy No 33 – Hazardous and Offensive Development
- State Environmental Planning Policy No 36 — Manufactured Home Estates
- State Environmental Planning Policy No 55 — Remediation of Land
- State Environmental Planning Policy No 65 – Design Quality of Residential Apartment Development
- State Environmental Planning Policy No 70 — Affordable Housing (Revised Schemes)
- State Environmental Planning Policy (Affordable Rental Housing) 2009
- State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
- State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017
- State Environmental Planning Policy (Exempt and Complying Development Code) 2008
- State Environmental Planning Policy (Housing) 2021
- State Environmental Planning Policy (Infrastructure) 2007
- State Environmental Planning Policy (Mining, Petroleum Production & Extractive Industries) 2007
- State Environmental Planning Policy (Primary Production and Rural Development) 2019
- State Environmental Planning Policy (State and Regional Development) 2011

www.planningportal.nsw.gov.au/draftplans

(3) The name of each development control plan that applies to the carrying out of development on the land:

Lot 31 DP 771673 **Queanbeyan Development Control Plan 2012**
www.qprc.nsw.gov.au/Building-Development/Planning-Zoning/Planning-controls#section-3

2. Zoning and land use under relevant LEPs

(a) Identity of the zone:

Lot 31 DP 771673 **B3 Commercial Core**

B3 Commercial Core - *Queanbeyan Local Environmental Plan 2012*

(b) Permitted without consent

Nil.

(c) Permitted with consent

Centre-based child care facilities; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Medical centres; Oyster aquaculture; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Tank-based aquaculture; Any other development not specified in item (b) or (d).

(d) Prohibited

Agriculture; Air transport facilities; Airstrips; Attached dwellings; Backpackers' accommodation; Bed and breakfast accommodation; Biosolids treatment facilities; Boat building and repair facilities; Boat launching ramps; Boat sheds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Dual occupancies; Dwelling houses; Eco-tourist facilities; Electricity generating works; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Farm stay accommodation; Forestry; Freight transport facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Hostels; Industrial retail outlets; Industries; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Multi dwelling housing; Open cut mining; Pond-based aquaculture Recreation areas; Recreation facilities (major); Recreation facilities (outdoor); Research stations; Residential flat buildings; Resource recovery facilities; Rural industries; Rural workers' dwellings; Secondary dwellings; Semi-detached dwellings; Seniors housing; Service stations; Sewage treatment plants; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste disposal facilities; Water recreation structures; Water recycling facilities; Water supply systems.

Note: Demolition of a building or work requires consent under clause 2.7 of the applicable Local Environmental Plan.

Listed below are any additional site-specific permitted uses (only with development consent) from the schedule of the relevant Local Environmental Plan cited in clause 1(1) of this certificate. Note that for multi lot titles, the additional uses may apply only to particular lots.

Lot 31 DP 771673 **There are no additional uses permitted on this land.**

(e) Minimum land dimensions for the erection of a dwelling house on the land fixed by development standards applying to the land:

(1) Minimum area

Lot 31 DP 771673	**Not applicable. A new dwelling is prohibited on the land.**

Unless the land is within a zone where a dwelling house is not permitted. Refer to clause 2(d).

(f) Whether the land includes or comprises critical habitat:

Lot 31 DP 771673	**No. None of the land includes or comprises critical habitat.**

(g) Whether the land is in a conservation area:

Lot 31 DP 771673	**No. The land is not in a Heritage Conservation Area or a State Conservation Area.**

(h) Whether an item of environmental heritage is situated on the land:

Lot 31 DP 771673	**No. Council is not aware of any items of state environmental heritage or local environmental heritage that are located on the land.**

2A. Zoning and land use under *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*

Whether the land is within any zone under:

(a) Part 3 of the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* or

(b) A Precinct Plan (within the means of the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* or

(c) A proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act.

Not applicable.

3. Complying Development

(1) Whether or not the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

(2) If complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy, the reasons why it may not be carried out under these clauses.

Lot 31 DP 771673

Yes. Under NSW legislation [*State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*] and council records, complying development may be able to be carried out on this land under the following codes:

- **Housing Alterations Code (Part 4)**
- **General Development Code (Part 4A)**
- **Commercial and Industrial Alterations Code (Part 5)**
- **Commercial and Industrial (New Buildings and Additions) Code (Part 5A)**
- **Container Recycling Facilities Code (Part 5B)**
- **Subdivisions Code (Part 6)**
- **Demolition Code (Part 7)**
- **Fire Safety Code (Part 8)**

If complying development under any of these codes above is being considered to be carried out on this land, the applicant is advised to check the provisions of clauses 1.17, 1.17A, 1.18, 1.19 and 1.20 of this policy to confirm that complying development is possible:
https://www.legislation.nsw.gov.au/#/view/EPI/2008/572/full

The 2019 edition of the National Construction Code is effective from 1 May 2019.

The following complying development codes are not applicable to this land:

- **Housing Code (Part 3)**
- **Rural Housing Code (Part 3A)**
- **Low Rise Housing Diversity Code (Part 3B)**
- **Greenfield Housing Code (Part 3C)**
- **Inland Code (Part 3D)**

4, 4A. Repealed

4B. Annual charges under *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works

In relation to a coastal council—whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

No. The land is not affected because it is not located in a coastal council.

5. Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of the *Coal Mine Subsidence Compensation Act 2017.*

No. The land is not proclaimed to be a mine subsidence district within the meaning of the *Coal Mine Subsidence Compensation Act 2017.*

6. Road widening and road realignment

(a) Is the land affected by a road widening or road realignment under Division 2 of Part 3 of the *Roads Act 1993*?

Lot 31 DP 771673	**No. The land is not affected by a road widening or road realignment under the Roads Act 1993.**

(b) Is the land affected by any road widening or road realignment under any environmental planning instrument?

Lot 31 DP 771673	**No. The land is not affected by any road widening or road realignment under any environmental planning instrument.**

(c) Is the land affected by any road widening or road realignment under any resolution of the Council?

Lot 31 DP 771673	**No. The land is not affected by a road widening or road realignment under a resolution of Council.**

7. Council and other public authority policies on hazard risk restrictions

(a) Is the land affected by a policy adopted by council that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding)?

Yes. All land in QPRC is affected by policies adopted by the council that restricts the development of the land because of the likelihood of contaminated land and bushfire.

Lot 31 DP 771673	**The land has not been assessed for the likelihood of contamination by Council considering past uses or results of systematic testing. It is not known if Contaminated Land provisions of the Development Control Plan or the relevant State legislation, apply.**

Note: Refer to Clause 11 of this certificate to check if the land is bushfire prone.

(b) Is the land affected by a policy adopted by any other public authority that restricts the development of the land because of the likelihood of landslip, bushfire, tidal inundation, subsidence, acid sulphate or any other risk?

No. Council is not aware of a policy adopted by any other public authority that restricts the development of the land.

7A. Flood related development controls

(1) Whether the land or part of the land is within the flood planning area and is subject to flood related development controls.

Lot 31 DP 771673	**Yes. The land or part of the land is within the flood planning area and is subject to flood related development controls.**

(2) Whether the land or part of the land is between the flood planning area and the probable maximum flood and is subject to flood related development controls.

Lot 31 DP 771673	**No.**

8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

Lot 31 DP 771673	**No. Council is not aware of any environmental planning instrument or proposed environmental planning instrument that makes provision for the acquisition of the land by a public authority.**

9. Contributions plans

The name of each Contributions plan applying to the land.

Lot 31 DP 771673	**Queanbeyan Section 7.12 Fixed Levy Development Contributions Plan 2019.**
Lot 31 DP 771673	**Queanbeyan Section 94 Contributions Plan for Extractive Industry 2014.**

www.qprc.nsw.gov.au/Building-Development/Planning-Zoning/Planning-controls#section-6

9A. Biodiversity certified land

Whether the land is biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016.*

Lot 31 DP 771673	**No. Council has not been notified that the land is biodiversity certified under the Biodiversity Conservation Act 2016.**

10. Biodiversity stewardship sites

Whether the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016.*

Lot 31 DP 771673	**No. Council has not been notified that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under the Biodiversity Conservation Act 2016.**

10A. Native vegetation clearing set asides

Whether the land contains a set aside area under section 60ZC of the *Local Land Services Act 2013*.

Lot 31 DP 771673	**No. Council has not been notified that the land contains a set aside area or it is registered in the public register under the Local Land Services Act 2013.**

11. Bush fire prone land

Whether the land is bush fire prone land.

Lot 31 DP 771673	**No. The land is not bush fire prone as defined in Section 10.3 of the Environmental Planning and Assessment Act 1979.**

12. Property Vegetation Plans

Whether Council has been notified that a property vegetation plan under the *Native Vegetation Act 2003* applies to the land.

Lot 31 DP 771673	**No. Council has not been notified of a property vegetation plan under the Native Vegetation Act 2003 that applies to the land.**

13. Orders under *Trees (Disputes Between Neighbours) Act 2006*

Whether Council has been notified whether an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

No. Council has not been notified of order made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

14. Directions under Part 3A

Whether there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

No. Council has not been advised of any Directions by the Minister under section 75P (2) (c1) of the Act.

15. Site compatibility certificates and conditions for seniors housing

Whether there is a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land:

No. Council is not aware of any valid site compatibility certificate (seniors housing) applying to the land.

16. Site compatibility certificates for infrastructure, schools or TAFE establishments

Whether there is a valid site compatibility certificate (infrastructure, schools or TAFE establishments), of which council is aware of in respect of proposed development on the land.

No. Council is not aware of any valid site compatibility certificate (infrastructure, schools or TAFE establishments) applying to the land.

17. Site compatibility certificates and conditions for affordable rental housing

Whether there a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land.

No. Council is not aware of any valid site compatibility certificate (affordable rental housing) applying to the land.

18. Paper subdivision information

The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

No. Council is not aware of any development plan adopted by a relevant authority or any subdivision Order that applies to a paper subdivision of the land as described in Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificate

Whether there is a current site verification certificate in relation to Division 3 of Part 4AA of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* that Council is aware of.

No. Council is not aware of any site verification certificate applying to the land.

20. Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division.

No. Council is not aware of any residential premises on the land that are affected by loose-fill asbestos insulation (Division 1A of Part 8 of the *Home Building Act 1989*) and that are listed on the NSW register that is required to be maintained under that Division.

NSW Fair Trading maintains a NSW Register of homes that are affected by loose-fill asbestos insulation: www.fairtrading.nsw.gov.au/loose-fill-asbestos-insulation-register

Some buildings located in the Queanbeyan-Palerang local government area have been identified as containing loose-fill asbestos insulation (sometimes referred to as "Mr Fluffy" insulation), for example, in the roof space. You should make your own enquiries as to the age of the buildings on the land to which this certificate relates. If the land contains a building constructed prior to 1980, Queanbeyan-Palerang Regional Council strongly recommends that any potential purchaser obtains advice from a licensed asbestos assessor to determine whether loose-fill asbestos is present in any building on the land; and, if so, the health risks (if any) this may pose for the building's occupants. Contact NSW Fair Trading for further information: https://www.fairtrading.nsw.gov.au/housing-and-property/loose-fill-asbestos-insulation

Nothing in this statement relates to information about the presence of bonded asbestos materials such as asbestos cement sheeting that may have been used at this site.

21. Affected building notices and building product rectification orders

(1) Is there any affected building notice of which the council is aware that is in force in respect of the land?

(2) A statement of:

(a) whether there is any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with, and

(b) whether any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

No. Council is not aware of the existence of any affected building notice in force, or building product rectification order, or any notice of intention to make a building product rectification order.

22. *State Environmental Planning Policy (Western Sydney Aerotropolis) 2020*

For land to which *State Environmental Planning Policy (Western Sydney Aerotropolis) 2020* applies, whether the land is:

(a) in an ANEF or ANEC contour of 20 or greater as referred to in clause 19 of that Policy, or

(b) shown on the *Lighting Intensity and Wind Shear Map* under that Policy, or

(c) shown on the *Obstacle Limitation Surface Map* under that Policy, or

(d) in the "public safety area" on the *Public Safety Area Map* under that Policy, or

(e) in the "3 kilometre wildlife buffer zone" or the "13 kilometre wildlife buffer zone" on the *Wildlife Buffer Zone Map* under that Policy.

Not applicable.

Additional Notes

Aircraft Noise

The land is not located within the Australian Noise Exposure Forecast (ANEF) contour of 20 or greater for the Canberra Airport. Land within an ANEF contour of less than 20 is generally regarded as being 'acceptable' for new residential dwellings and other land uses under *Australian Standard AS2021:2015 Acoustics- Aircraft noise intrusion- Building siting and construction*. Further advice in respect of potential aircraft noise impacts is available from Canberra Airport at:
https://www.canberraairport.com.au/corporate/community/aircraft-noise

Additional matters prescribed by section 59(2) of the *Contaminated Land Management Act 1997*

(a) Whether there is land to which a certificate relates regarding significantly contaminated land within the meaning of that Act.

Lot 31 DP 771673	**No. Council is not aware that the land is significantly contaminated.**

(b) Whether there is land to which a certificate relates regarding being subject to a management order within the meaning of that Act.

Lot 31 DP 771673	**No. Council is not aware that the land is subject to a management order.**

(c) Whether there is land to which a certificate relates regarding the subject of an approved voluntary management proposal within the meaning of that Act.

Lot 31 DP 771673	**No. Council is not aware that the land is subject to an approved voluntary management order.**

(d) Whether there is land to which a certificate relates regarding being subject to an ongoing maintenance order within the meaning of that Act.

Lot 31 DP 771673	**No. Council is not aware that the land is subject to an ongoing maintenance order.**

(e) Whether there is land to which a certificate relates regarding being the subject of a site audit statement within the meaning of that Act.

Lot 31 DP 771673	**No. Council is not aware that the land is the subject of a site audit statement.**

Additional information provided in accordance with section 10.7(5) of the *Environmental Planning and Assessment Act 1979*

Vegetation Clearing

There are restrictions on the clearing of vegetation on the land.
Refer to:

- ***State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017,***
- ***Biodiversity Conservation Act 2016,***
- ***Local Land Services Act 2013,***
- **relevant Development Control Plan [see clause 1(3) of this certificate],**
- **clause 10A of this certificate if a native vegetation set aside area applies,**
- **clause 12 of this certificate if a property vegetation plan applies.**

Loose Fill Asbestos

If the land to which this certificate relates contains a building constructed prior to 1980, the Council strongly recommends that any potential purchaser obtain advice from an appropriately qualified expert as to whether loose fill asbestos is present in any building on the land and, if so, the health risks (if any) this may pose for the building's occupants. Prospective purchasers may also wish to ask the current owner if the property has previously been inspected under the NSW WorkCover ceiling insulation testing program. Further information about loose fill asbestos insulation (including information about the NSW WorkCover ceiling insulation testing scheme) can be found at:
http://www.fairtrading.nsw.gov.au/housing-and-property/loose-fill-asbestos-insulation

Road Access in Non-Urban Areas

Lot 31 DP 771673 **Not applicable. The land is located in an urban area.**
https://www.gprc.nsw.gov.au/Services/Roads-and-footpaths

Development Approvals

Some information of previous development applications may be available. Provided there is evidence of ownership or written approval from the land owner, applicants can request to inspect the paper property files of this property at 256 Crawford Street, Queanbeyan NSW. Please allow 1-2 days' notice for Council to retrieve the records after making a telephone call. Applicants can view the property file free-of-charge, with a small fee if the applicant requires paper copies of any record.

ISSUE DETAILS
Certificate No: PL.2021.3155
Checked: CK

M J Thompson
Portfolio General Manager
Natural and Built Character
Queanbeyan-Palerang Regional Council

Per……

08 November 2021

Environment Protection Licence - Protection of the Environment Operations Act 1997

Licence Variation

Section 58(5) Protection of the Environment Operations Act 1997

SOUTHERN AREA HEALTH SERVICE,

PO BOX 1845,

QUEANBEYAN NSW 2620

STANDARD POST

Attention: Mr. ROD WALKER

Notice Number 1012119

File Number 290563

Date 26-Oct-2001

NOTICE OF VARIATION OF LICENCE 11002

BACKGROUND

A. SOUTHERN AREA HEALTH SERVICE ("the licensee") is the holder of environment protection licence 11002 for Scheduled Activity - Premises Based ("the licence") under the Protection of the Environment Operations Act 1997 ("the POEO Act").

B. Under the Protection of the Environment Operations Act 1997 (the Act) certain types of waste are subject to special monitoring and reporting requirements by the EPA through the waste tracking system.

A current note in your licence refers to an exemption order on clinical waste tracking requirements that was made by the EPA under section 284 of the Act and published in the NSW Government Gazette No 55, on 5 May 2000. That exemption was in force until 30 September 2001. As a result , this variation notice has now removed that out-of-date note from your licence.

You should however be aware that on 12 October 2001 the EPA published in the NSW Government Gazette a new exemption order (number 2001-E-01) under clause 16C of the Protection of the Environment Operations (Waste) Regulation 1996. The practical effect of this new notice is that the earlier exemption for clinical and related wastes will continue unchanged. The new exemption does not have an expiry date and will therefore be on-going.

A copy of the new exemption notice is on the EPA website under the "Waste". Please contact the POEO Service Centre on 133 372 or e-mail us at POEOHelp@epa.nsw.gov.au if you have any queries.

Licence Variation

Section 58(5) Protection of the Environment Operations Act 1997

VARIATION OF LICENCE 11002

1. By this notice the EPA varies licence 11002 as set out in the Appendix. *(for licenses with a lot of changes and where the whole licence document will be in the appendix:* The Appendix is a copy of the licence marked with the variations that are made to it by this notice. *(for licences with a small number of changes where only the conditions will be printed:* The Appendix is a copy of the provisions of the licence which are varied by this notice, marked with the variations that are made to them.

2. The variations to the licence are indicated in the following way:

   - if a strike through mark appears through any word or other text (eg. ~~Solids or~~) this indicates that the word or other text is deleted from the licence by this notice; and

   - if a double underline appears under any word or other text (eg. must be treated) this indicates that the word or other text is added to the licence by this notice.

3. Except, as provided by s84(2) of the POEO Act, the variations to the licence by this notice begin to operate at the expiry of the period of 21 days from when you get notice of the variations, unless another date is specified in this notice.

4. Note: Section 84(2) provides that a variation to a licence does not operate until

   - the expiry of the period of 21 days after notice of the decision to vary the licence is given to the licensee, or

   - if an appeal against the decision is lodged, until the Land and Environment Court determines the appeal, or

   - the licensee notifies the EPA in writing that no appeal is to be made against the decision to vary the licence,

   whichever first occurs.

5. This notice is issued under section 58(5) of the Protection of the Environment Operations Act 1997.

. . . . . .

Ms Aine Fitzgerald
Systems Project Officer
Regulation and Audit
(by Delegation)

INFORMATION ABOUT THIS NOTICE

- Section 287 of the Act enables appeals to be made in connection with decisions about a licence application within 21 days after notice of the decision is given to the applicant.

- Details provided in this notice will be available on the EPA's Public Register in accordance with section 308 of the Protection of the Environment Operations Act 1997.

O5 Monitoring of waste movements within NSW

Conditions O5.2 to O5.16 apply to the movement of the types of hazardous and/or industrial and/or Group A waste as listed in L5.3, within NSW.

The waste tracking requirements in licence conditions O5.2 to O5.16 do not apply until after 30 September 2001 provided that:

clinical and related waste (sharps, cytotoxic, pharmaceuticals) is transported from the premises by an authorised contractor licensed to transport the waste; and

the licensee and authorised contractor have a legally binding contract with each other which requires that:

the waste is transported to a licensed waste facility;

the authorised contractor must provide the licensee with documentation at least every 60 days identifying the types of waste collected in the period, the quantities of each load of the waste collected, the place the waste was taken for treatment or disposal, and certifying that all waste was taken to a licensed waste facility;

the licensee must inform the EPA within 14 days if the receipt of documentation is not received within 60 days; and

the licensee and authorised contractor must keep copies of the contract and all documentation for 4 years and make them available to the EPA upon request.

Section 55 Protection of the Environment Operations Act 1997

Environment Protection Licence

Licence - 11002

Department of **Environment & Climate Change** NSW

Licence Details	
Number:	11002
Anniversary Date:	20-July
Review Due Date:	10-Jun-2009

Licensee

GREATER SOUTHERN AREA HEALTH SERVICE
PO BOX 1845
QUEANBEYAN NSW 2620

Licence Type

Premises

Premises

QUEANBEYAN HEALTH SERVICE
Cnr Erin and Collett Street
QUEANBEYAN NSW 2620

Scheduled Activity

Waste Activities

Fee Based Activity	**Scale**
Hazardous, Industrial or Group A Waste Generation or Storage (73)	0 - 10 T

Region

South - Queanbeyan
Suite 4, Robert Lowe Building, 30 Lowe Street
QUEANBEYAN NSW 2620
Phone: 02 6122 3100
Fax: 02 6299 3525

PO Box 622 QUEANBEYAN
NSW 2620

Environment Protection Licence

Licence - 11002

Department of Environment & Climate Change NSW

Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act); and
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

The EPA publication "A Guide to Licensing" contains information about how to calculate your licence fees.

The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

GREATER SOUTHERN AREA HEALTH SERVICE
PO BOX 1845
QUEANBEYAN NSW 2620

subject to the conditions which follow.

1 Administrative conditions

A1 What the licence authorises and regulates

A1.1 Not applicable.

A1.2 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity
Waste Activities

Fee Based Activity	Scale
Hazardous, Industrial or Group A Waste Generation or Storage (73)	0 - 10 T

A1.3 Not applicable.

A2 Premises to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
QUEANBEYAN HEALTH SERVICE
Cnr Erin and Collett Street
QUEANBEYAN
NSW
2620
PT LOT 4 DP520714,LOT 2 DP 226590, LOT 3 DP 515797
-

A3 Other activities

A3.1 Not applicable.

A4 Information supplied to the EPA

A4.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:
(a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
(b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

2 Discharges to air and water and applications to land

P1 Location of monitoring/discharge points and areas

P1.1 Not applicable.

P1.2 Not applicable.

P1.3 Not applicable.

3 Limit conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Load limits

L2.1 Not applicable.

L2.2 Not applicable.

L3 Concentration limits

L3.1 Not applicable.

L3.2 Not applicable.

L3.3 Not applicable.

L4 Volume and mass limits

L4.1 Not applicable.

L5 Waste

L5.1 The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.

L5.2 This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if those activities require an environment protection licence.

L5.3 Except as provided by any other condition of this licence, only the hazardous and/or industrial and/or Group A waste listed below may be generated and/or stored at the premises.

Clinical waste; Cytotoxic waste;
Sharps waste; and Pharmaceuticals waste.

L5.4 With the exception of the wastes listed below generated by community based health programs, the licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.

- Receipt of sharps waste;
- Receipt of waste pharmaceuticals;
- Receipt of clinical waste.

L5.5 The quantity of hazardous/and/or industrial and/or Group A waste generated and/or stored on the premises must not exceed 10 tonnes at any one time.

L6 Noise Limits

L6.1 Not applicable.

4 Operating conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.

This includes:
(a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
(b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
(a) must be maintained in a proper and efficient condition; and
(b) must be operated in a proper and efficient manner.

O3 Emergency response

O3.1 Within 3 months of the date of the issue of this licence, the licensee must develop, or update, an emergency response plan which documents the procedures to deal with all types of incidents (e.g. spill, explosions or fire) that may occur at the premises or outside of the premises (e.g. during transfer) which are likely to cause harm to the environment.

O4 Processes and management

O4.1 The licensee must ensure that any liquid and/or non liquid waste generated and/or stored at the premises is assessed and classified in accordance with the EPA Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes, in force as at 1 July 1999.

O4.2 The licensee must ensure that waste identified for recycling is stored separately from other waste.

O5 Monitoring of waste movements within NSW

Prerequisites for waste movements

O5.1 If the waste is transported from the premises, the licensee must ensure that the waste is transported:
(a) to a place which has been licensed by the EPA to issue consignment authorisation numbers; and
(b) to a place that can otherwise lawfully accept that class of waste.

O5.2 If the waste is transported from the premises, the licensee must;
(a) obtain a consignment authorisation number from the consignee;
(b) complete an approved waste data form in relation to the consigned waste in accordance with the instructions on the form and to the extent required, and give a copy of the form to the person transporting the waste;
(c) ensure that the waste data form:
(i) is completed accurately, and
(ii) is retained for a period of not less than 4 years from the time the form was completed, and
(iii) is made available for inspection by an authorised officer on request;
(d) ensure, if the waste is of such an amount as to require the person transporting it to be licensed, that the person transporting the waste is licensed.

Application for a consignment authorisation number

O5.3 To obtain a consignment authorisation number as required by 05.3 (a), the licensee must apply in writing to the consignee. An application must include the following information:
(a) a statement identifying the classification of the waste in accordance with the requirements of condition 04.1;
(b) copies of all information used to classify the waste;
(c) an estimate of the amount of waste to which the application applies;
(d) whether the consignment will consist a single load or multiple loads;
(e) an estimate of the total period required for transportation of the consignment;
(f) the date of dispatch of at least the first load in the consignment.

Note: The licensee may nominate the dates of dispatch of as many loads as is feasible. This should be discussed with the consignee and will depend on the predictability of the rate of generation of the waste and the likelihood of the need for amendments to the dates nominated. If the waste is predictable, a schedule may be able to be submitted for the entire consignment, however if it is unpredictable, the date of only one future load may be able to be determined at a time (see also 05.9 about amending notified dates).

Note: The requirement for a written application for a consignment authorisation number does not preclude preliminary contact to obtain quotes and/or advice. Such preliminary contact does not require the formal provision of the above information that need only be supplied in the formal application.

O5.4 Once an application for a consignment authorisation number, as set out in 05.4 has been submitted, the licensee must not submit an application for the same consignment to another consignee until notification is received concerning the outcome of the application.

Notification of dates of dispatch of the second and subsequent loads in a consignment.

O5.5 The licensee must provide the consignee with written notification of the date of dispatch of each load of waste.

O5.6 The notification referred to in 05.6 must be received by consignee no later than the date of arrival of the preceding load at the destination.

Notification of a final load in a consignment.

O5.7 Unless the movement of an entire consignment of waste occurs in a single load, by the time the final load in a consignment is accepted at the destination, the licensee must have informed the consignee in writing, that no further loads are to be dispatched under that consignment authorisation number.

Note: The notifications referred to in conditions 05.6 and 05.8 may be attached to the waste data form of the preceding load.

Amendments to the nominated date(s) of dispatch

O5.8 If the date of dispatch for a load of waste is changed, the licensee must give written notification of this to the consignee and nominate a revised date of dispatch.

O5.9 A notification referred to in 05.9 must occur on or before the date of delivery as previously nominated.

Note: More than one amendment to dates of dispatch may occur.

Cancellation of consignment authorisations

O5.10 If the licensee determines that the delivery of a consignment of waste is to be discontinued for any reason, the consignee must be notified in writing before the nominated date of dispatch of the next expected load.

Notification of delayed delivery by transporter

O5.11 If the licensee receives written notification from a transporter who removed waste from the premises specifying a revised date of delivery to the destination which is more than 7 days after the date of dispatch, the licensee must note and record that date.

Record keeping

O5.12 The licensee must record and retain all information related to each consignment of waste.

Note: This includes waste data forms and copies of other documents such as notifications of revised delivery dates, regular and other reports, etc.

O5.13 The records referred to in 05.13 must be kept so that:
(a) all records relating to individual consignment authorisation numbers are kept physically together;
(b) consignments transported by each transporter can be readily identified and accessed; and
(c) consignments sent to each destination can readily be identified and accessed.

Note: The licensee must keep all information for at least 4 years.

Exception reporting

O5.14 The licensee must notify the EPA, in writing, within 48 hours of becoming aware of any suspected breaches of the Act, the Protection of the Environment Operations (Waste) Regulation 1996 or this licence.

O5.15 The licensee must notify the EPA in writing within 48 hours of becoming aware of any of the following:
(a) the refusal by a person to whom the licensee has applied for a consignment authorisation number in accordance with 05.4 to issue such a number;
(b) the refusal of a transporter to transport waste after arriving at the licensee's premises for the purposes of transporting that waste;
(c) a transporter who transports, or attempts to transport, waste without a waste data form completed to the extent required;
(d) the refusal of a consignee to accept waste from the licensee;
(e) the failure of the licensee to receive written confirmation of receipt of waste from a consignee within 21 days of dispatch, or where a transporter has provided written notification of a revised date of delivery as set out in 05.12 within 21 days of that date;
(f) the notification by a transporter of a revised date of delivery which is more than 90 days after the date of dispatch of the waste.

Note: The EPA should be notified of exception reports by sending a facsimile to:

Manager, Hazardous Waste Regulation

NSW Environment Protection Authority

O6 Monitoring of interstate movements of controlled wastes

O6.1 Conditions O6.2 to O6.11 apply to the movement of the types of hazardous and/or industrial and/or Group A waste as listed in L5.3, into and out of NSW.

Note: The requirements of the NEPM apply to the interstate movement of any of the wastes listed in Appendix 1 of this licence.

Classification of controlled waste

O6.2 The licensee must accurately identify the waste, in accordance with 04.1, and determine if the waste is a controlled waste within the meaning of the NEPM.

Note: The waste producer must check with the agency in the State or Territory of destination to determine whether waste is classified as a controlled waste under the NEPM. Unless advised otherwise by the agency of the State or Territory of destination, any waste included in Appendix 1 of this licence is a controlled waste for the purposes of the NEPM.

Application for a consignment authorisation

O6.3 If the waste is transported from the premises to another participating State or Territory, the

licensee must comply with all conditions attached to the consignment authorisation issued by an agency or a facility delegated by an agency in the destination State or Territory.

Note: The waste producer is required by the Protection of the Environment Operations (Waste) Regulation 1996 to obtain, prior to the waste being dispatched, a consignment authorisation from an agency, or a facility delegated by an agency, in the destination State or territory to allow the movement of controlled waste.

Waste movements

O6.4 If the waste is transported from the premises to another participating State or Territory, the licensee must ensure that the waste is transported to a place that can lawfully be used as a waste facility for that waste.

O6.5 The licensee must ensure that the waste transporter is licensed as required by the agency of each participating State or Territory through which the waste is transported.

O6.6 The licensee must:
(a) retain a copy of the waste transport certificate for the waste for a period of not less than 4 years from the time the form was completed, and
(b) make the copy of the waste transport certificate available for inspection by an authorised officer on request.

Note: The waste producer is required by the Protection of the Environment Operations (Waste) Regulation 1996 to complete a waste transport certificate for the waste. This should be done in accordance with the instructions printed on the certificate and the required copy of the waste transport certificate should be forwarded to the agency in the State of destination.

Notification of delayed delivery by transporter

O6.7 If the licensee receives written notification from the transporter who removed waste from the licensee's premises specifying a revised date of delivery to the destination which is more than 7 days after the date of dispatch, the licensee must note and record that date.

Record keeping

O6.8 The licensee must record and retain all information related to each consignment of waste.

Note: This includes the waste transport certificates and copies of other documents such as consignment authorisations issued by an agency in the destination State or Territory, notifications of revised delivery dates by transporters, regular and other reports, etc.

O6.9 The records referred to in 06.8 must be kept so that:
(a) all records relating to each consignment authorisation are kept physically together;
(b) consignments transported by each transporter can be readily identified and accessed, and
(c) consignments sent to each destination can readily be identified and accessed.

Note: The licensee must keep all information for at least 4 years.

Exception reporting

O6.10 The licensee must notify the EPA in writing within 48 hours of becoming aware of a suspected breach of the Act, the Protection of the Environment Operations (Waste) Regulation 1996 or this licence.

O6.11 The licensee must notify the EPA in writing within 48 hours of becoming aware of any of the following:
(a) the refusal by an agency, or facility delegated by an agency, in participating State or Territory to whom the licensee has applied for a consignment authorisation in accordance with 06.3, to issue such an authorisation;
(b) the refusal of a transporter to transport waste after arriving at the licensee's premises for the purposes of transporting that waste to another participating State or Territory to the extent required;
(c) a transporter who transports, or attempts to transport, waste to another participating State or Territory without a waste transport certificate completed to the extent required;
(d) the refusal of a destination in another participating State or Territory to accept from the licensee waste for which a consignment authorisation has been issued;
(e) the failure of the licensee to receive written confirmation of receipt of waste from a destination in another participating State or Territory within 28 days of dispatch.

Note: The EPA should be notified of exception reports by sending a facsimile to:

Manager, Hazardous Waste Regulation
NSW Environment Protection Authority

5 Monitoring and recording conditions

M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:
(a) in a legible form, or in a form that can readily be reduced to a legible form;
(b) kept for at least 4 years after the monitoring or event to which they relate took place; and
(c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
(a) the date(s) on which the sample was taken;
(b) the time(s) at which the sample was collected;
(c) the point at which the sample was taken; and
(d) the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

M2.1 Not applicable.

M3 Testing methods - concentration limits

M3.1 Not applicable.

M3.2 Not applicable.

M4 Recording of pollution complaints

M4.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M4.2 The record must include details of the following:
(a) the date and time of the complaint;
(b) the method by which the complaint was made;
(c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
(d) the nature of the complaint;
(e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
(f) if no action was taken by the licensee, the reasons why no action was taken.

M4.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M4.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M5 Telephone complaints line

M5.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M5.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M5.3 Conditions M5.1 and M5.2 do not apply until 3 months after:
(a) the date of the issue of this licence or

(b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.

M6 Requirement to monitor volume or mass

M6.1 Not applicable.

6 Reporting conditions

R1 Annual return documents

What documents must an Annual Return contain?

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
(a) a Statement of Compliance; and
(b) a Monitoring and Complaints Summary.
A copy of the form in which the Annual Return must be supplied to the EPA accompanies this licence. Before the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

Period covered by Annual Return

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:
(a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
(b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
(a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
(b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

Deadline for Annual Return

R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

Notification where actual load can not be calculated

R1.6 Not applicable.

Licensee must retain copy of Annual Return

R1.7 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

Certifying of Statement of Compliance and signing of Monitoring and Complaints Summary

R1.8 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
(a) the licence holder; or
(b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R1.9 A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.

R2 Notification of environmental harm

Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R2.1 Notifications must be made by telephoning the EPA's Pollution Line service on 131 555.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
(a) where this licence applies to premises, an event has occurred at the premises; or
(b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:
(a) the cause, time and duration of the event;
(b) the type, volume and concentration of every pollutant discharged as a result of the event;
(c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
(d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
(e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
(f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
(g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

R4 Regular reporting of transportation of certain wastes within NSW

R4.1 Conditions R4.2 to R4.5 apply to the transport of hazardous and/or industrial and/or Group A waste within NSW.

Regular reporting

R4.2 The licensee must supply to the EPA, for each transporter that transported waste from the licensees premises, the information as set out in Appendix 2, table 1.

R4.3 The licensee must supply to the EPA, for each destination within NSW which received waste from the licensee, the information as set out in Appendix 2, table 2.

Reporting periods

R4.4 Reports to the EPA in accordance with R4.2 and R4.3 shall be supplied on or before:
(a) 30 April for the reporting of information relating to wastes transported from the premises between 1 January and 31 March of that year;
(b) 31 July for the reporting of information relating to wastes transported from the premises between 1 April and 30 June of that year;
(c) 31 October for the reporting of information relating to wastes transported from the premises between 1 July and 30 September of that year;
(d) 31 January for the reporting of information relating to wastes transported from the premises between 1 October and 31 December of the previous year.

Note: The EPA should be notified of exception reports by sending a facsimile to:
Manager, Hazardous Waste Regulation

NSW Environment Protection Authority

Nil reports

R4.5 If waste has not been transported from the premises in any reporting period as set out in R4.4 the EPA must be advised in writing by the licensee, by the dates referred to in R4.4 in lieu of reporting as required in R4.2 and R4.3.

R5 Regular reporting of interstate movements of controlled wastes

R5.1 Conditions R5.2 to R5.5 apply to the movement of hazardous and/or Industrial and/or Group A waste as listed in L5.3, into and out of NSW.

Note: The requirements of the NEPM apply to the interstate movement of any of the wastes listed in Appendix 1 of this licence.

Regular reporting

R5.2 The licensee must supply to the EPA, for each transporter that transported waste from the premises to a destination in another participating State or Territory, the information as set out in Appendix 2, table 3.

Reporting periods

R5.3 Reports to the EPA in accordance with R5.2 shall be supplied on or before:
(a) 30 April for the reporting of information relating to wastes transported from the premises between 1 January and 31 March of that year;
(b) 31 July for the reporting of information relating to wastes transported from the premises between 1 April and 30 June of that year;
(c) 31 October for the reporting of information relating to wastes transported from the premises between 1 July and 30 September of that year;
(d) 31 January for the reporting of information relating to wastes transported from the premises between 1 October and 31 December of the previous year.

Nil reports

R5.4 If waste has not been transported from the premises in any reporting period as set out in R5.3, the EPA must be advised in writing by the licensee, by the dates referred to in R5.3 in lieu of reporting as defined in R5.2.

Interstate transport of controlled wastes

R5.5 The licensee must comply with the requirements of the NEPM.

General conditions

G1 Copy of licence kept at the premises

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

Pollution studies and reduction programs

U1 Not applicable.

Special conditions

E1 Not applicable.

Appendices

APPENDIX 1

WASTE DESCRIPTIONS AND CORRESPONDING WASTE CODES

The waste descriptions and waste codes shown below must be used to identify hazardous, industrial and Group A wastes on the waste data form for movements of those wastes within NSW, and to identify controlled wastes on the waste transport certificate for those wastes moved between NSW and other States and Territories. The waste codes must also be used to identify wastes when reporting the information required in the Tables in Appendix 2.

Description	Waste Code		Description	Waste Code
Acidic solutions or acids in solid form	B100		Organohalogen compounds - other than substances referred to in this list	M160
Animal effluent and residues (abattoir effluent, poultry and fish processing wastes)	K100		Perchlorates	D340
Antimony; antimony compounds	D170		Phenols, phenol compounds including chlorophenols	M150
Arsenic; arsenic compounds	D130		Phosphorus compounds excluding mineral phosphates	D360
Asbestos	N220		Polychlorinated dibenzo-furan (any congener)	M170

Environment Protection Licence

Barium compounds (excluding barium sulphate)	D290		Polychlorinated dibenzo-p-dioxin (any congener)	M180
Basic solutions or bases in solid form	C100		Residues from industrial waste treatment/disposal operations	T190
Beryllium; beryllium compounds	D160		Selenium; selenium compounds	D240
Boron compounds	D310		Sewage sludge and residues including nightsoil and septic tank sludge	K130
Cadmium; cadmium compounds	D150		Soils contaminated with a controlled waste	N120
Ceramic-based fibres with physico-chemical characteristics similar to those of asbestos	N230		Surface active agents (surfactants), containing principally organic constituents and which may contain metals and inorganic materials	M250
Chlorates	D350		Tannery wastes (including leather dust, ash, sludges and flours)	K140
Chromium compounds (hexavalent and trivalent)	D140		Tellurium; tellurium compounds	D250
Clinical and related wastes	R100		Thallium; thallium compounds	D180
Cobalt compounds	D200		Triethylamine catalysts for setting foundry sands	M230
Containers and drums which are contaminated with residues of substances referred to in this list	N100		Tyres	T140
Copper compounds	D190		Vanadium compounds	D270
Cyanides (inorganic)	A130		Waste chemical substances arising from research and development or teaching activities including those which are not identified and/or are new and whose effects on human health and/or the environment are not known	T100
Cyanides (organic)	M210		Waste containing peroxides other than hydrogen peroxide	E100
Encapsulated, chemically-fixed, solidified or polymerised wastes	N160		Waste from heat treatment and tempering operations containing cyanides	A110
Ethers	G100		Waste from manufacture, formulation and use of wood-preserving chemicals	H170
Filter cake	N190		Waste from the production, formulation and use of biocides and phytopharmaceuticals	H100
Fire debris and fire washwaters	N140		Waste from the production, formulation and use of inks, dyes, pigments, paints, lacquers and varnish	F100
Fly ash	N150		Waste from the production, formulation and use of organic solvents	G160
Grease trap waste	K110		Waste from the production, formulation and use of photographic chemicals and processing materials	T120
Halogenated organic solvents	G150		Waste from the production, formulation and use of resins, latex, plasticisers, glues and adhesives	F110
Highly odorous organic chemicals (including mercaptans and acrylates)	M260		Waste from the production and preparation of pharmaceutical products	R140
Inorganic fluorine compounds excluding calcium fluoride	D110		Waste mineral oils unfit for their original intended use	J100
Inorganic sulfides	D330		Waste oil/water, hydrocarbons/water mixtures or emulsions	J120
Isocyanate compounds	M220		Waste pharmaceuticals, drugs and medicines	R120
Lead; lead compounds	D220		Waste resulting from surface treatment of metals and plastics	A100
Mercury; mercury compounds	D120		Waste tarry residues arising from refining, distillation, and any pyrolytic treatment	J160
Metal carbonyls Nickel compounds Non toxic salts Organic phosphorous compounds	D100 D210 D300 H110		Waste substances and articles containing or contaminated with polychlorinated biphenyls, polychlorinated napthalenes, polychlorinated terphenyls and/or polybrominated biphenyls	M100
Organic solvents excluding halogenated solvents	G110		Wool scouring wastes Zinc compounds	K190 D230

APPENDIX 2

Table 1

[Table 1 refers to the regular reporting requirements in R4.2. Its purpose is to provide information on the total amount of waste moved by each transporter from waste activities in NSW.]

1. The licensee must provide a copy of the information in the following table for each transporter used by the licensee in the reporting period.

Waste Activities Table 1: Waste Movements By Transporter and Waste Category			
Name of Licensed Waste Activity:		**Waste Activity Licence No.:**	
Reporting Period:		**ANZSIC Code for Waste Activity:**	
Name of Transporter:		**Licence No. of Transporter**	

Waste class	**Waste Code**	**Amount of Waste Transported in Reporting Period (tonnes)**
Hazardous Non-Liquid Waste	*Code for each waste of this class*	*Total Weight for waste of each code*
Hazardous Liquid Waste	*Code*	*Weight*
	Code	*Weight*
Industrial Non-Liquid Waste	*Code*	*Weight*
	Code	*Weight*
Group A Liquid Waste	*Code*	*Weight*

	Code	Weight

*[NOTES: **Waste code** refers to the codes listed in Appendix 1 of this licence and entered on the waste transport certificates.*
***Waste class** refers to the classification of waste in accordance with Appendix 1 of the Protection of the Environment Operations Act 1997 and its regulations.*

***ANZSIC code** means the Australian and New Zealand Standard Industrial Classification code published by the Australian Bureau of Statistics.]*

Table 2:

[Table 2 refers to the reporting requirements in R4.3. Its purpose is to provide information on the total amount of waste sent to each destination within NSW. Cross referencing by ANZSIC code provides data on which types of industry are sending wastes to disposal and treatment facilities.]

1. The licensee must provide a copy of the information in the following table for each destination within NSW used by the licensee in the reporting period for the purposes of the receipt of controlled waste.

Waste Activities Table 2: Waste Movements By Destination (within NSW) and Waste Category			
Name of Licensed Waste Activity:		**Waste Activity Licence No.:**	
Reporting Period:		**ANZSIC Code for Waste Activity**	
Destination:			

Waste class	**Waste Code**	**Amount of Waste Transported in Reporting Period (tonnes)**
Hazardous Non-Liquid Wastes	*Code for each waste of this class*	*Total Weight for waste of each code*
	Code	*Weight*
Industrial Non-Liquid Wastes	*Code*	*Weight*
	Code	*Weight*
Hazardous Liquid Wastes	*Code*	*Weight*
	Code	*Weight*
Group A Liquid Wastes	*Code*	*Weight*

NOTES:
***Waste code** refers to the codes listed in Appendix 1 of this licence and entered on waste data forms.*
***Waste class** refers to the classification of waste in accordance with Schedule 1 of the Protection of the Environment Operations Act 1997 and its regulations.*

***ANZSIC code** means the Australian and New Zealand Standard Industrial Classification code published by the Australian Bureau of Statistics.*

Table 3:
[Table 3 refers to the regular reporting requirements in R5.2. Its purpose is to provide information on the total amounts of controlled wastes sent from NSW licensed waste activities to other States and Territories. Cross-referencing by ANZSIC code allows data on which types of industries are sending wastes interstate.]

1. The licensee must provide a copy of the information in the following table for each destination outside NSW used by the licensee in the reporting period for the purposes of the receipt of controlled waste.

Waste Activities Table 3: Controlled Waste Movements By Interstate Destination and Waste Category			
Name of Licensed Waste Activity:		**Waste Activity Licence No.:**	
Reporting Period:		**ANZSIC Code Waste Activity:**	
Destination State or Territory:		**Destination Facility**	
Waste class	**Waste Code**		**Amount of Waste Transported in Reporting Period (tonnes)**
Hazardous Non-Liquid Waste	*Code for each waste of this type*		*Total Weight for waste of this code*
	Code		*Weight*
Industrial Non-Liquid Waste	*Code*		*Weight*
	Code		*Weight*
Hazardous Liquid Waste	*Code*		*Weight*
	Code		*Weight*
Group A Liquid Waste	*Code*		*Weight*

Other Types of Waste (eg Group B and C Liquid Wastes, Used Tyres)	*Code*	*Weight*

*[NOTES: **Waste code** refers to the codes listed in Appendix 1 of this licence and entered on the waste transport certificates.*
***Waste class** refers to the classification of waste in accordance with Appendix 1 of the Protection of the Environment Operations Act 1997 and its regulations.*
***ANZSIC code** means the Australian and New Zealand Standard Industrial Classification code published by the Australian Bureau of Statistics.]*

Dictionary

General Dictionary

In this licence, unless the contrary is indicated, the terms below have the following meanings:

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
COD	Means chemical oxygen demand

composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 1998.
flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
industrial waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
inert waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997

regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
reprocessing of waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
treatment of waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste code	Means the waste codes listed in Appendix 5 of the EPA document A Guide to Licensing Part B.
waste type	Means Group A, Group B, Group C, inert, solid, industrial or hazardous waste

Model Licence Dictionary

In this licence, unless the contrary is indicated, the terms below have the following meanings:

Agency	A body or bodies of a participating State or a participating Territory which that State or Territory has nominated for the purposes of the NEPM.
Chemical control order (CCO)	An order under sections 22 and 23 of the Environmentally Hazardous Chemicals Act 1985.
Consignee	The person to whom the waste is dispatched, and includes: (a) in the case of a waste facility that is licensed - the occupier; (b) in the case of a person carrying on mobile waste processing that is licensed - the person operating the mobile place; (c) in the case of a place that can be otherwise lawfully be used as a waste facility for that waste - the owner or occupier of that place.
Consignment	One or more shipments of a specified waste dispatched to a particular destination.

Consignment authorisation	An approval which includes a unique identifier granted by an agency, or a facility delegated by an agency, in the jurisdiction of destination to allow the movement of controlled waste.
Controlled waste	Any waste included in List 1 of Schedule A of the NEPM, provided that the waste possesses one or more of the characteristics in List 2, of Schedule A of the NEPM.
Date of dispatch	The date on which a load of waste is removed from the premises**.**
Destination	Where hazardous, industrial or Group A wastes are transported within NSW, the place described in the waste data form as the destination for the waste. Where controlled wastes are transported between NSW and another participating State or Territory, the place described in Part 3 of the waste transport certificate as the facility receiving the waste.
Facility	A place where controlled wastes are received.
Facility Operator	A person in charge of a facility.
Jurisdiction of destination	In relation to a particular consignment of waste means the State or Territory in which the facility is located to which the waste is intended to be transported.
Load	The amount of a consignment of waste placed on a vehicle for any single dispatch from the premises at which it was generated or stored.
Load number	A consecutive number identifying each load of waste within a consignment and starting with 1 for the first load of each consignment. One or more loads may make up a consignment.
NEPM	The National Environment Protection (Movement of Controlled Wastes between States and Territories) Measure 1998.
Non-liquid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997.
Participating State or Territory	A State or Territory that is (a) a party to the Intergovernmental Agreement on the Environment made on 1 May 1992 between the Commonwealth, the States, the Australian Capital Territory, the Northern Territory and the Australian Local Government Association, a copy of which is set out in the Schedule to the Commonwealth Act; and (b) in which an Act that corresponds to the National Environment Protection Council Act 1994 of the Commonwealth is in force in accordance with the Agreement.
Recycling of waste	The processing of waste into a similar non-waste product.
Regulation	The Protection of the Environment Operations (Waste) Regulation 1996.
Transporter	A person responsible for moving controlled wastes either from one participating State or Territory to another or through participating States or Territories.
Waste activity	An activity, whether required to be licensed or not, carried on for business or other commercial purposes, that involves the generating or storage of any of the following waste classes: (a) hazardous waste, (b) industrial waste,

	(c) Group A waste.
Waste class	Means either hazardous, industrial or Group A waste.
Waste data form	A certificate in the form approved by the EPA.
Waste guidelines	The document called *"Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes"* issued by the EPA and in force as at 1 July 1999.
Waste producer	Means the licensee.
Waste transport certificate	A certificate in the form approved by the EPA as fulfilling the requirements of Schedule B of the National Environment Protection (Movement of Controlled Wastes between States and Territories) Measure 1998.

Mr Nigel Sargent

Environment Protection Authority

(By Delegation)

Date of this edition - 14-Mar-2007

End Notes

1	Licence varied by notice 1012119, issued on 26-Oct-2001, which came into effect on 20-Nov-2001.
2	Licence varied by Admin corrections to archived record, issued on 09-Dec-2002, which came into effect on 09-Dec-2002.
3	Licence varied by notice 1037726, issued on 10-Jun-2004, which came into effect on 05-Jul-2004.
4	Licence varied by change to DEC file number, issued on 14-Mar-2007, which came into effect on 14-Mar-2007.

Environment Protection Licence - Protection of the Environment Operations Act 1997

Licence Variation

Section 58(5) Protection of the Environment Operations Act 1997

SOUTHERN AREA HEALTH SERVICE,

ABN 17 547 988 294,

PO BOX 1845,

QUEANBEYAN NSW 2620

REGISTERED POST

Attention: Mr. ROD WALKER

Notice Number 1037726

File Number 290563

Date 10-Jun-2004

NOTICE OF VARIATION OF LICENCE 11002

BACKGROUND

A. SOUTHERN AREA HEALTH SERVICE t/as ("the licensee") is the holder of environment protection licence 11002 for Scheduled Activity - Premises Based ("the licence") under the Protection of the Environment Operations Act 1997 ("the POEO Act").

B. The licence has been varied as an outcome of the licence review conducted by the EPA as required under S78 of the *Protection of the Environment Operations Act, 1997*.

VARIATION OF LICENCE 11002

1. By this notice the EPA varies licence 11002 as set out in the Appendix. The Appendix is a copy of the provisions of the licence which are varied by this notice, marked with the variations that are made to them.

2. The variations to the licence are indicated in the following way:

   - if a strike through mark appears through any word or other text (eg. ~~Solids or~~) this indicates that the word or other text is deleted from the licence by this notice; and

- if a double underline appears under any word or other text (eg. must be treated) this indicates that the word or other text is added to the licence by this notice.

3. Except, as provided by s84(2) of the POEO Act, the variations to the licence by this notice begin to operate at the expiry of the period of 21 days from when you get notice of the variations, unless another date is specified in this notice.

4. Note: Section 84(2) provides that a variation to a licence does not operate until

   - the expiry of the period of 21 days after notice of the decision to vary the licence is given to the licensee, or
   - if an appeal against the decision is lodged, until the Land and Environment Court determines the appeal, or
   - the licensee notifies the EPA in writing that no appeal is to be made against the decision to vary the licence,

   whichever first occurs.

5. This notice is issued under section 58(5) of the Protection of the Environment Operations Act 1997.

. . . . . .

Mr Nigel Sargent
Head Regional Operations Unit
Southern Tablelands
(by Delegation)

INFORMATION ABOUT THIS NOTICE

- Section 287 of the Act enables appeals to be made in connection with decisions about a licence application within 21 days after notice of the decision is given to the applicant.
- Details provided in this notice will be available on the EPA's Public Register in accordance with section 308 of the Protection of the Environment Operations Act 1997.

Environment Protection Authority

Environment Protection Licence

Section 55 Protection of the Environment Operations Act 1997

- **Licence number: 11002**
- **File number: 290563**
- **Licence Anniversary Date: 20-July**
- **Review date not later than 20-Jul-2003**

Licence Type
Premises

Licensee
SOUTHERN AREA HEALTH SERVICE
PO BOX 1845
QUEANBEYAN NSW 2620

Licensed Premises
QUEANBEYAN HEALTH SERVICE
Cnr Erin and Collett Street
QUEANBEYAN NSW 2620

Fee Based Activity	**Scale**
Hazardous, Industrial or Group A Waste Generation or Storage (73)	0 - 10 T

EPA Region
Southern Tablelands
Suite 4, Robert Lowe Building, 30 Lowe Street
QUEANBEYAN NSW 2620
Phone: 02 6122 3100
Fax: 02 6299 3525
PO Box 622 QUEANBEYAN
NSW 2620

A2 Premises to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
QUEANBEYAN HEALTH SERVICE
Cnr Erin and Collett Street
QUEANBEYAN
NSW
2620
PT LOT 4 DP520714,LOT 2 DP 226590, LOT 3 DP 515797
-

A4 Information supplied to the EPA

A4.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:
(a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
(b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

L5 Waste

L5.1 ~~With the exception of the wastes listed below, generated by community based health programs, the licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.~~

~~Receipt of sharps waste;~~
~~Receipt of waste pharmaceuticals;~~
~~Receipt of clinical waste.~~

~~L5.2~~ The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.

L5.2 This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste

at the premises if those activities require an environment protection licence.

L5.3 ~~This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if those activities require an environment protection licence.~~

~~L5.4~~ Except as provided by any other condition of this licence, only the hazardous and/or industrial and/or Group A waste listed below may be generated and/or stored at the premises.

Clinical waste; Cytotoxic waste;
Sharps waste; and Pharmaceuticals waste.

L5.4 With the exception of the wastes listed below generated by community based health programs, the licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.

- Receipt of sharps waste;
- Receipt of waste pharmaceuticals;
- Receipt of clinical waste.

O3 Emergency response

O3.1 Within ~~insert time limit~~ 3 months of the date of the issue of this licence, the licensee must develop, or update, an emergency response plan which documents the procedures to deal with all types of incidents (e.g. spill, explosions or fire) that may occur at the premises or outside of the premises (e.g. during transfer) which are likely to cause harm to the environment.

R5 Regular reporting of interstate movements of controlled wastes

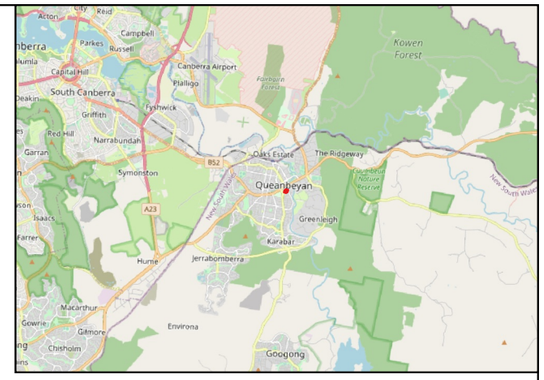
R5.1 Conditions R5.2 to R5.5 apply to the movement of ~~<~~hazardous and/or ~~industrial~~Industrial and/or Group A~~>~~ waste as listed in L5.3, into and out of NSW.

Pollution studies and reduction programs

U1 Not applicable.

Appendix D

Historical Aerial Photographs



LOCALITY MAP

Legend

- Approximate Site Boundary
- 250m Buffer

0 50 100 150 m

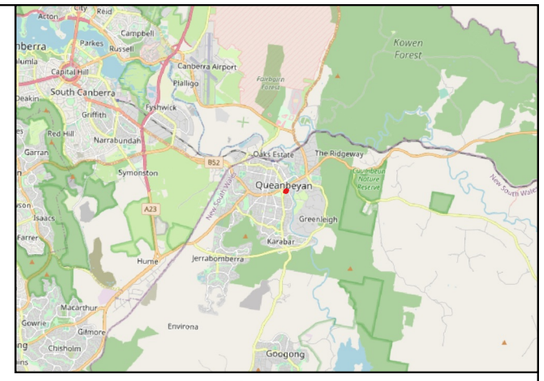
Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	The Village Building Co Ltd		
OFFICE:	Canberra	DRAWN BY:	PJS
SCALE:	1:2500 @ A3	DATE:	19.11.2021

TITLE: **Historical Aerial Photograph - 1961**
Proposed Apartment Building
6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

N

PROJECT No:	210506.01
DRAWING No:	D1
REVISION:	0



LOCALITY MAP

Legend

- Approximate Site Boundary
- 250m Buffer

0 50 100 150 m

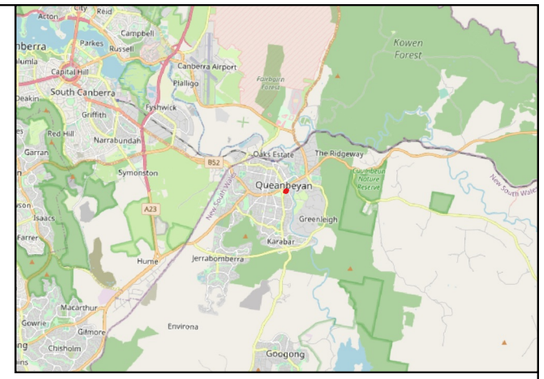
Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	The Village Building Co Ltd		
OFFICE:	Canberra	DRAWN BY:	PJS
SCALE:	1:2500 @ A3	DATE:	19.11.2021

TITLE: **Historical Aerial Photograph - 1976**
Proposed Apartment Building
6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

N

PROJECT No:	210506.01
DRAWING No:	D2
REVISION:	0



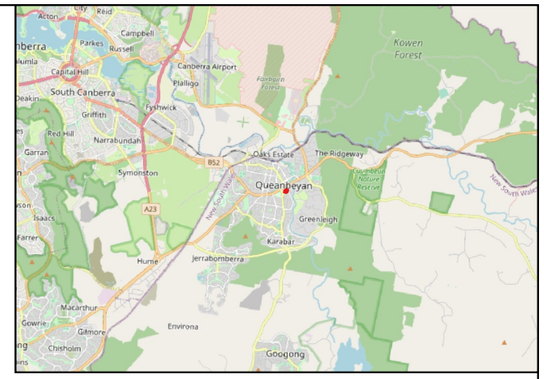
LOCALITY MAP

Legend

- Approximate Site Boundary
- 250m Buffer

0 50 100 150 m

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT: The Village Building Co Ltd	TITLE: **Historical Aerial Photograph - 1985**	PROJECT No: 210506.01
	OFFICE: Canberra / DRAWN BY: PJS	**Proposed Apartment Building**	DRAWING No: D3
	SCALE: 1:2500 @ A3 / DATE: 19.11.2021	**6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan**	REVISION: 0



LOCALITY MAP

Legend

- Approximate Site Boundary
- 250m Buffer

0 50 100 150 m

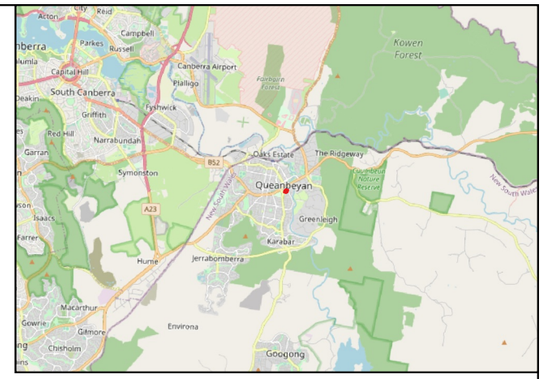
Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	The Village Building Co Ltd		
OFFICE:	Canberra	DRAWN BY:	PJS
SCALE:	1:2500 @ A3	DATE:	19.11.2021

TITLE: **Historical Aerial Photograph - 1992**
Proposed Apartment Building
6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

N

PROJECT No:	210506.01
DRAWING No:	D4
REVISION:	0



LOCALITY MAP

Legend

- Approximate Site Boundary
- 250m Buffer

0 50 100 150 m

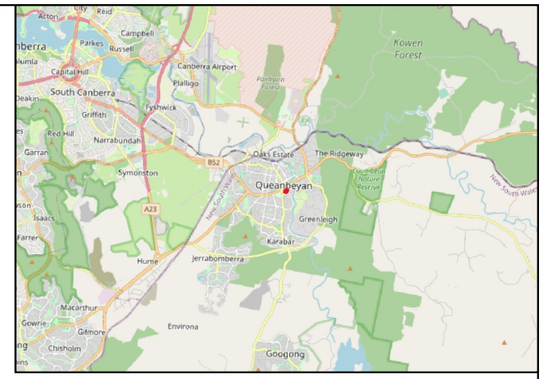
Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	The Village Building Co Ltd		
OFFICE:	Canberra	DRAWN BY:	PJS
SCALE:	1:2500 @ A3	DATE:	19.11.2021

TITLE: **Historical Aerial Photograph - 1998**
Proposed Apartment Building
6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

N

PROJECT No:	210506.01
DRAWING No:	D5
REVISION:	0



LOCALITY MAP

Legend

- Approximate Site Boundary
- 250m Buffer

0 50 100 150 m

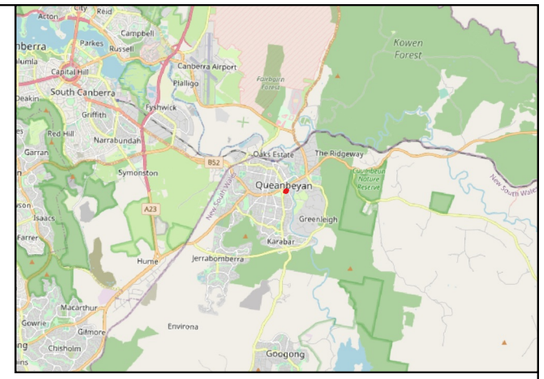
Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	The Village Building Co Ltd		
OFFICE:	Canberra	DRAWN BY:	PJS
SCALE:	1:2500 @ A3	DATE:	24.11.2021

TITLE: **Historical Aerial Photograph - 2014**
Proposed Apartment Building
6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

N

PROJECT No:	210506.01
DRAWING No:	D6
REVISION:	0



LOCALITY MAP

Legend

- Approximate Site Boundary
- 250m Buffer

0 50 100 150 m

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	The Village Building Co Ltd		
OFFICE:	Canberra	DRAWN BY:	PJS
SCALE:	1:2500 @ A3	DATE:	24.11.2021

TITLE: **Historical Aerial Photograph - 2020**
Proposed Apartment Building
6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

N

PROJECT No:	210506.01
DRAWING No:	D7
REVISION:	0

Appendix E

Site Photographs

Photo 1: View of site looking west along Rutledge Street

Photo 2: View of site looking east along Rutledge Street

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs**	PROJECT:	210506.01
	6 & 10-12 Rutledge Street &	Plate	1
	Part 257 Crawford Street	REV:	A
	Client: The Village Building Co Ltd	DATE:	23-Nov-21

Photo 3: View of site buildings, looking to the west

Photo 4: View of site buildings, looking to the north

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs**	PROJECT:	210506.01
	6 & 10-12 Rutledge Street &	Plate	2
	Part 257 Crawford Street	REV:	A
	Client: The Village Building Co Ltd	DATE:	23-Nov-21

Photo 5: View of the site looking to the south

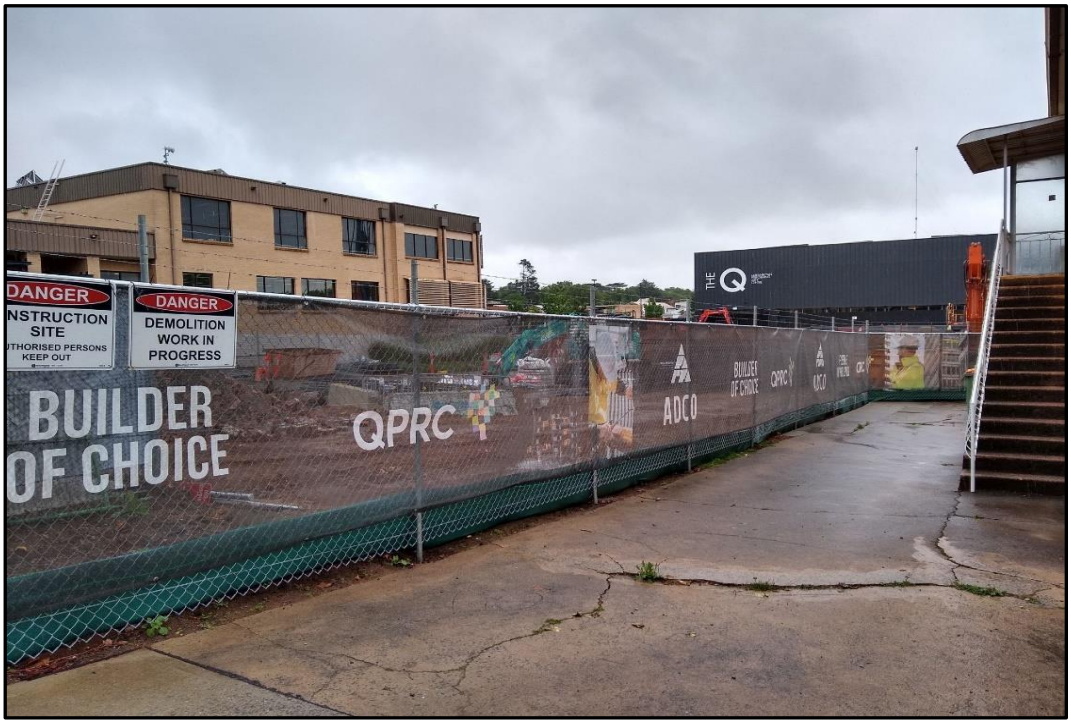


Photo 6: View of building site to the north of the site

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs**	PROJECT:	210506.01
	6 & 10-12 Rutledge Street &	Plate	3
	Part 257 Crawford Street	REV:	A
	Client: The Village Building Co Ltd	DATE:	23-Nov-21

Photo 7: View of building site to the north of the site

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs**		PROJECT:	210506.01
	6 & 10-12 Rutledge Street &		Plate	4
	Part 257 Crawford Street		REV:	A
	Client	The Village Building Co Ltd	DATE:	23-Nov-21

Appendix F

Data Quality Objectives

Appendix F
Data Quality Objectives
6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

F1.0 Data Quality Objectives

The PSI has been devised broadly in accordance with the seven-step data quality objective (DQO) process which is provided in Appendix B, Schedule B2 of NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013).

Step	Summary
1: State the problem	The objective of the investigation is to confirm the contamination status of the site with respect to the proposed land use. The report is being undertaken as the land is to be redeveloped and have a change in land use from commercial/industrial to residential. The requirements of the regulator, Queanbeyan Palerang Regional Council, will also be considered by consulting their Development Control Plan (DCP), Local Environment Plan (LEP) and any other requirements based on our recent experience with Council on similar sites. A preliminary conceptual site model (CSM) has been prepared (Section 9) for the proposed development. The project team consisted of experienced environmental engineers and scientists working in the roles of Project Principal, Project Reviewer, Project Manager, field staff. It is noted that this project has been undertake on a rapid turnaround to allow a decision on the purchase of the site to be made.
2: Identify the decisions / goal of the study	The site history has identified possible contaminating previous uses which are identified in the CSM (Section 9). The CSM identifies the associated contaminants of potential concern (COPC) and the likely impacted media. The site assessment criteria (SAC) for each of the COPC are detailed in Appendix H. The decision is to establish whether or not the results fall below the SAC or whether or not the 95% upper confidence limit of the sample population falls below the SAC. On this basis, an assessment of the site's suitability from a contamination perspective and whether (or not) further assessment and / or remediation will be derived.
3: Identify the information inputs	Inputs to the investigation will be the results of analysis of samples to measure the concentrations of COPC identified in the CSM (Section 9) at the site using NATA accredited laboratories and methods, where possible. The SAC for each of the COPC are detailed in Appendix H. A photoionisation detector (PID) was used on-site to screen soils for VOC. PID readings will be used to inform sample selection for laboratory analysis.
4: Define the study boundaries	The lateral boundaries of the investigation area are shown on Drawing 1, Appendix A. The vertical boundaries are to the extent of contamination impact as determined from the site history assessment and site observations. The assessment is limited to the timeframe over

Step	Summary
	which the field investigation was undertaken. Constraints to the assessment are identified and discussed in the conclusions of the report, Section Z.
5: Develop the analytical approach (or decision rule)	The decision rule is to compare all analytical results with SAC (Appendix H, based on NEPC (2013)). Where guideline values are absent, other sources of guideline values accepted by NEPC (2013) shall be adopted where possible. Where a sample result exceeds the adopted criterion, a further site-specific assessment will be made as to the risk posed by the presence of that contaminant(s). Initial comparisons will be with individual results then, where required, summary statistics (including mean, standard deviation and 95% upper confidence limit (UCL) of the arithmetic mean (95% UCL)) to assess potential risks posed by the site contamination. Quality control results are to be assessed according to their relative percent difference (RPD) values. For field duplicates, triplicates and laboratory results, RPDs should generally be below 30%; for field blanks and rinsates, results should be at or less than the limits of reporting (NEPC, 2013). The field and laboratory quality assurance assessment is included in Appendix L.
6: Specify the performance or acceptance criteria	Baseline condition: Contaminants at the site and/or statistical analysis of data (in line with NEPC (2013)) exceed human health and environmental SAC and pose a potentially unacceptable risk to receptors (null hypothesis). Unless conclusive information from the collected data is sufficient to reject the null hypothesis, it is assumed that the baseline condition is true. Uncertainty that may exist due to the above potential decision errors shall be mitigated as follows: • As well as a primary screening exercise, the use of the 95% UCL as per NEPC (2013) may be applied, i.e.: 95% is the defined confidence level associated with the UCL on the geometric mean for contaminant data. The resultant 95%UCL shall subsequently be screened against the corresponding SAC. • The statistical assessment will only be able to be applied to certain data-sets, such as those obtained via systematic sampling. Identification of areas for targeted sampling will be via professional judgement and errors will not be able to have a probability assigned to them.
7: Optimise the design for obtaining data	As the purpose of the sampling program is to assess for potential contamination across the site, the sampling program is reliant on professional judgement to identify and sample the potentially affected areas. Further details regarding the proposed sampling plan are presented in Section 10 and Appendix F.

F2.0 References

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM].* Australian Government Publishing Services Canberra: National Environment Protection Council.

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Appendix G

Field Work Methodology

Appendix G
Field Work Methodology
6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

G1.0 Guidelines

The following key guidelines were consulted for the field work methodology:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013).

G2.0 Soil Sampling

Soil sampling is carried out in accordance with DP standard operating procedures. The general sampling and sample management procedures comprise:

- Collect soil samples directly from solid flight auger;
- Transfer samples in laboratory-prepared glass jars with Teflon lined lids by hand, capping immediately and minimising headspace within the sample jar;
- Collect replicate samples in zip-lock bags for PID screening;
- Collect ~40 g to 50 g samples in zip-lock bags for asbestos (presence / absence) analysis;
- Wear a new disposable nitrile glove for each sample point thereby minimising potential for cross-contamination;
- Collect 10% replicate samples for QC purposes;
- Label sample containers with individual and unique identification details, including project number, sample location and sample depth (where applicable);
- Place samples into a cooled, insulated and sealed container for transport to the laboratory; and
- Use chain of custody documentation.

G2.1 Field Testing

Field testing is carried out in accordance with DP standard operating procedures. The general sampling and sample management procedures comprise:

PID Field Test

- Calibrate the PID with isobutylene gas at 100 ppm and with fresh air prior to commencement of each successive day's field work;
- Allow the headspace in the PID zip-lock bag samples to equilibrate; and

- Screen using the PID.

G3.0 References

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM].* Australian Government Publishing Services Canberra: National Environment Protection Council.

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Appendix H

Derivation of Site Assessment Criteria

Appendix H
Derivation of Site Assessment Criteria
6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

H1.0 Introduction

H1.1 Guidelines

The following key guidelines were consulted for deriving the site assessment criteria (SAC):

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013).
- CRC CARE *Health screening levels for petroleum hydrocarbons in soil and groundwater* (CRC CARE, 2011).

H1.2 General

The SAC applied in the current investigation are informed by the CSM which identified human and environmental receptors to potential contamination at the site. Analytical results are assessed (as a Tier 1 assessment) against the SAC comprising primarily the investigation and screening levels of Schedule B1 of NEPC (2013).

The following inputs are relevant to the selection and/or derivation of the SAC:

- Land use: residential and likely commercial/industrial.
    - Corresponding to land use category 'B', residential with minimal opportunities for soil access includes dwellings with fully and permanently paved yard space such as high-rise buildings and flats.
- Soil type: silt

Criteria for high density residential have been selected as this represents the most sensitive of the proposed land uses following development of the site.

H2.0 Soils

H2.1 Health Investigation and Screening Levels

The generic health investigation levels (HIL) and health screening levels (HSL) are considered to be appropriate for the assessment of human health risk via all relevant pathways of exposure associated with contamination at the site. The adopted soil HIL and HSL for the contaminants of concern are in Table 1 and Table 2.

Table 1: Health Investigation Levels (mg/kg)

Contaminant	HIL-B
Metals	
Arsenic	500
Cadmium	150
Chromium (VI)	500
Copper	30 000
Lead	1200
Mercury (inorganic)	120
Nickel	1200
Zinc	60 000
PAH	
B(a)P TEQ	4
Total PAH	400
OCP	
DDT+DDE+DDD	600
Aldrin and dieldrin	10
Chlordane	90
Endosulfan	400
Endrin	20
Heptachlor	10
HCB	15
Methoxychlor	500
OPP	
Chlorpyrifos	340
PCB	
PCB	1

Table 2: Health Screening Levels (mg/kg)

Contaminant	HSL-A&B	HSL-A&B	HSL-A&B	HSL-A&B
SILT	**0 m to <1 m**	**1 m to <2 m**	**2 m to <4 m**	**4 m+**
Benzene	0.6	0.7	1	2
Toluene	390	NL	NL	NL

Contaminant	HSL-A&B	HSL-A&B	HSL-A&B	HSL-A&B
Ethylbenzene	NL	NL	NL	NL
Xylenes	95	210	NL	NL
Naphthalene	4	NL	NL	NL
TRH F1	40	65	100	190
TRH F2	230	NL	NL	NL

Notes: TRH F1 is TRH C_6-C_{10} minus BTEX

TRH F2 is TRH >C_{10}-C_{16} minus naphthalene

The soil saturation concentration (Csat) is defined as the soil concentration at which the porewater phase cannot dissolve any more of an individual chemical. The soil vapour that is in equilibrium with the porewater will be at its maximum. If the derived soil HSL exceeds Csat, a soil vapour source concentration for a petroleum mixture could not exceed a level that would results in the maximum allowable vapour risk for the given scenario. For these scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limiting' or 'NL'

The HSL for direct contact derived from CRC CARE (2011) are in Table 3.

Table 3: Health Screening Levels for Direct Contact (mg/kg)

Contaminant	DC HSL-B	DC HSL-IMW
Benzene	140	1100
Toluene	21 000	120 000
Ethylbenzene	5900	85 000
Xylenes	17 000	130 000
Naphthalene	2200	29 000
TRH F1	5600	82 000
TRH F2	4200	62 000
TRH F3	5800	85 000
TRH F4	8100	120 000

Notes: TRH F1 is TRH C_6-C_{10} minus BTEX

TRH F2 is TRH >C_{10}-C_{16} minus naphthalene

IMW intrusive maintenance worker

H2.2 Asbestos in Soil

Based on the CSM and/or current site access limitations, a detailed asbestos assessment was not considered to be warranted at this stage. However, due to the history of widespread use of ACM products across Australia, ACM can be encountered unexpectedly and sporadically at a site. Therefore, the presence or absence of asbestos at a limit of reporting of 0.1 g/kg (AS:4964) has been adopted for this investigation / assessment as an initial screen.

H2.3 Ecological Investigation Levels

Ecological investigation levels (EIL) and added contaminant limits (ACL), where appropriate, have been derived in NEPC (2013) for arsenic, copper, chromium (III), nickel, lead, zinc, DDT and naphthalene. The adopted EIL, derived using the interactive (excel) calculation spreadsheet on the NEPM toolbox website are shown in Table 5, with inputs into their derivation shown in Table 4.

Table 4: Inputs to the Derivation of the Ecological Investigation Levels

Variable	Input	Rationale
Age of contaminants	"Aged" (>2 years)	CSM indicated potential contamination dated from pre 1990s
pH	n/a	Most conservative value applied
CEC	n/a	Most conservative value applied
Clay content	n/a	Most conservative value applied
Traffic volumes	high	Site is adjacent to main road
State / Territory	NSW	Site is located in NSW

Table 5: Ecological Investigation Levels (mg/kg)

Contaminant	EIL-A-B-C
Metals	
Arsenic	100
Copper	55
Nickel	35
Chromium III	410
Lead	1100
Zinc	150
PAH	
Naphthalene	170
OCP	
DDT	180

Notes: EIL-A-B-C urban residential and public open space

H2.4 Ecological Screening Levels

Ecological screening levels (ESL) are used to assess the risk of selected petroleum hydrocarbon compounds, BTEX and benzo(a)pyrene to terrestrial ecosystems. The adopted ESL are shown in Table 6.

Table 6: Ecological Screening Levels (mg/kg)

Contaminant	Soil Type	EIL-A-B-C
Benzene	Fine	65
Toluene	Fine	105
Ethylbenzene	Fine	125
Xylenes	Fine	45
TRH F1	Coarse/ Fine	180*
TRH F2	Coarse/ Fine	120*
TRH F3	Fine	1300
TRH F4	Fine	5600
B(a)P	Fine	0.7

Notes: ESL are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability
TRH F1 is TRH C_6-C_{10} minus BTEX
TRH F2 is TRH >C_{10}-C_{16} including naphthalene
EIL-A-B-C urban residential and public open space

H2.5 Management Limits

In addition to appropriate consideration and application of the HSL and ESL, there are additional considerations which reflect the nature and properties of petroleum hydrocarbons, including:

- Formation of observable light non-aqueous phase liquids (LNAPL);
- Fire and explosion hazards;
- Effects on buried infrastructure eg: penetration of, or damage to, in-ground services.

The adopted management limits are in Table 7.

Table 7: Management Limits (mg/kg)

Contaminant	Soil Type	ML-A-B-C
TRH F1	Fine	800
TRH F2	Fine	1000
TRH F3	Fine	3500
TRH F4	Fine	10 000

Notes: TRH F1 is TRH C_6-C_{10} including BTEX
TRH F2 is TRH >C_{10}-C_{16} including naphthalene
ML-A-B-C residential, parkland and public open space

H3.0 References

ANZECC. (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Australia and New Zealand Environment and Conservation Council.

ANZG. (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Canberra, ACT: Australian and New Zealand Governments and Australian state and territory governments.

CRC CARE. (2011). *Health screening levels for petroleum hydrocarbons in soil and groundwater.* Parts 1 to 3, Technical Report No. 10: Cooperative Research Centre for Contamination Assessment and Remediation of the Environment.

HEPA. (2020). *PFAS National Environmental Management Plan (NEMP).* Version 2.0: Heads of EPAs Australia and New Zealand and Australian Government Department of the Environment.

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM].* Australian Government Publishing Services Canberra: National Environment Protection Council.

NHMRC. (2008). *Guidelines for Managing Risks In Recreational Water.*

NHMRC, NRMMC. (2016). *Australian Drinking Water Guidelines 6 2011, Version 3.2.* Canberra: National Health and Medical Research Council, National Resource Management Ministerial Council.

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Appendix I

Results Tables

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Table I1: Summary of Laboratory Results – Metals, TRH, BTEX, PAH

			Metals								TRH						BTEX				PAH			
			Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene [b]	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs
		PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	0.2	0.5	1	1	0.1	0.05	0.5	0.05
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1	0.5 m	10/11/2021	<4	<0.4	18	1	3	<0.1	9	12	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	<0.05
			500 100	150 -	500 410	30000 55	1200 1100	120 -	1200 35	60000 150	- -	- 120	40 180	230 -	- 1300	- 5600	0.6 65	390 105	NL 125	95 45	4 170	- 0.7	4 -	400 -
BH1	3 m	10/11/2021	<4	<0.4	18	11	10	<0.1	9	14	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	<0.05
			500 100	150 -	500 410	30000 55	1200 1100	120 -	1200 35	60000 150	- -	- 120	100 180	NL -	- 1300	- 5600	1 65	NL 105	NL 125	NL 45	NL 170	- 0.7	4 -	400 -
BH1	4 m	10/11/2021	<4	<0.4	21	10	12	<0.1	8	13	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	<0.05
			500 100	150 -	500 410	30000 55	1200 1100	120 -	1200 35	60000 150	- -	- 120	190 180	NL -	- 1300	- 5600	2 65	NL 105	NL 125	NL 45	NL 170	- 0.7	4 -	400 -
BH2	0.1 m	11/11/2021	<4	<0.4	18	2	5	<0.1	9	14	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	<0.05
			500 100	150 -	500 410	30000 55	1200 1100	120 -	1200 35	60000 150	- -	- 120	40 180	230 -	- 1300	- 5600	0.6 65	390 105	NL 125	95 45	4 170	- 0.7	4 -	400 -
BH2	5.5 m	11/11/2021	<4	<0.4	11	8	7	<0.1	7	18	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	<0.05
			500 100	150 -	500 410	30000 55	1200 1100	120 -	1200 35	60000 150	- -	- 120	190 180	NL -	- 1300	- 5600	2 65	NL 105	NL 125	NL 45	NL 170	- 0.7	4 -	400 -
BH3	0.1 m	08/11/2021	<4	<0.4	10	16	120	<0.1	5	66	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	0.2
			500 100	150 -	500 410	30000 55	1200 1100	120 -	1200 35	60000 150	- -	- 120	40 180	230 -	- 1300	- 5600	0.6 65	390 105	NL 125	95 45	4 170	- 0.7	4 -	400 -
R1	0 m	06/11/2021	<4	<0.4	11	14	97	0.1	5	64	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	0.1
			500 100	150 -	500 410	30000 55	1200 1100	120 -	1200 35	60000 150	- -	- 120	40 180	230 -	- 1300	- 5600	0.6 65	390 105	NL 125	95 45	4 170	- 0.7	4 -	400 -
BH3	1 m	08/11/2021	<4	<0.4	16	10	19	<0.1	8	30	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	<0.05
			500 100	150 -	500 410	30000 55	1200 1100	120 -	1200 35	60000 150	- -	- 120	65 180	NL -	- 1300	- 5600	0.7 65	NL 105	NL 125	210 45	NL 170	- 0.7	4 -	400 -
BH3	7 m	08/11/2021	<4	<0.4	13	8	9	<0.1	8	27	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	<0.05
			500 100	150 -	500 410	30000 55	1200 1100	120 -	1200 35	60000 150	- -	- 120	190 180	NL -	- 1300	- 5600	2 65	NL 105	NL 125	NL 45	NL 170	- 0.7	4 -	400 -
BH4	0.5 m	11/11/2021	<4	<0.4	11	7	10	<0.1	5	24	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	<0.05
			500 100	150 -	500 410	30000 55	1200 1100	120 -	1200 35	60000 150	- -	- 120	40 180	230 -	- 1300	- 5600	0.6 65	390 105	NL 125	95 45	4 170	- 0.7	4 -	400 -
BH4	6.5 m	11/11/2021	<4	<0.4	13	8	9	<0.1	8	26	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	<0.05
			500 100	150 -	500 410	30000 55	1200 1100	120 -	1200 35	60000 150	- -	- 120	190 180	NL -	- 1300	- 5600	2 65	NL 105	NL 125	NL 45	NL 170	- 0.7	4 -	400 -
BH5	0.5 m	06/11/2021	<4	<0.4	10	7	20	<0.1	5	65	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	<0.05
			500 100	150 -	500 410	30000 55	1200 1100	120 -	1200 35	60000 150	- -	- 120	40 180	230 -	- 1300	- 5600	0.6 65	390 105	NL 125	95 45	4 170	- 0.7	4 -	400 -
BH5	6 m	06/11/2021	<4	<0.4	8	6	7	<0.1	7	16	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	<0.05
			500 100	150 -	500 410	30000 55	1200 1100	120 -	1200 35	60000 150	- -	- 120	190 180	NL -	- 1300	- 5600	2 65	NL 105	NL 125	NL 45	NL 170	- 0.7	4 -	400 -

Lab result

HIL/HSL value EIL/ESL value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab, refer to the lab report **Blue** = DC exceedance HSL 0-<1 Exceedance

Bold = Lab detections - = Not tested or No HIL/HSL/EIL/ESL (as applicable) or Not applicable NL = Non limiting AD = Asbestos detected NAD = No Asbestos detected

HIL = Health investigation level HSL = Health screening level (excluding DC) EIL = Ecological investigation level ESL = Ecological screening level ML = Management Limit DC = Direct Contact HSL

Notes:

a QA/QC replicate of sample listed directly below the primary sample

b Reported naphthalene laboratory result obtained from BTEXN suite

c Criteria applies to DDT only

Site Assessment Criteria (SAC):

Refer to the SAC section of report for information of SAC sources and rationale. Summary information as follows:

SAC based on generic land use thresholds for Residential B with minimal opportunities for soil access

HIL B	Residential / Low - High Density (NEPC, 2013)
HSL A/B	Residential / Low - High Density (vapour intrusion) (NEPC, 2013)
DC HSL B	Direct contact HSL B Residential (High density) (direct contact) (CRC CARE, 2011)
EIL/ESL UR/POS	Urban Residential and Public Open Space (NEPC, 2013)
ML R/P/POS	Residential, Parkland and Public Open Space (NEPC, 2013)

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Table I2: Summary of Laboratory Results – OCP, OPP, PCB, Asbestos

			OCP											OPP	PCB								Asbestos		
			DDD	DDT+DDE+DDD [c]	DDE	DDT	Aldrin & Dieldrin	Total Chlordane	Endrin	Total Endosulfan	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyriphos	Arochlor 1016	Total PCB	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Asbestos ID in soil >0.1g/kg	Trace Analysis	Asbestos (50 g)
		PQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1			
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-	-	-
BH1	0.5 m	10/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD
			- -	600 180	- -	- 180	10 -	90 -	20 -	400 -	10 -	15 -	500 -	340 -	- -	1 -	- -	- -	- -	- -	- -	- -			
BH1	3 m	10/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD
			- -	600 180	- -	- 180	10 -	90 -	20 -	400 -	10 -	15 -	500 -	340 -	- -	1 -	- -	- -	- -	- -	- -	- -			
BH1	4 m	10/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD
			- -	600 180	- -	- 180	10 -	90 -	20 -	400 -	10 -	15 -	500 -	340 -	- -	1 -	- -	- -	- -	- -	- -	- -			
BH2	0.1 m	11/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD
			- -	600 180	- -	- 180	10 -	90 -	20 -	400 -	10 -	15 -	500 -	340 -	- -	1 -	- -	- -	- -	- -	- -	- -			
BH2	5.5 m	11/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD
			- -	600 180	- -	- 180	10 -	90 -	20 -	400 -	10 -	15 -	500 -	340 -	- -	1 -	- -	- -	- -	- -	- -	- -			
BH3	0.1 m	08/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD
			- -	600 180	- -	- 180	10 -	90 -	20 -	400 -	10 -	15 -	500 -	340 -	- -	1 -	- -	- -	- -	- -	- -	- -			
R1	0 m	06/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD
			- -	600 180	- -	- 180	10 -	90 -	20 -	400 -	10 -	15 -	500 -	340 -	- -	1 -	- -	- -	- -	- -	- -	- -			
BH3	1 m	08/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD
			- -	600 180	- -	- 180	10 -	90 -	20 -	400 -	10 -	15 -	500 -	340 -	- -	1 -	- -	- -	- -	- -	- -	- -			
BH3	7 m	08/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD
			- -	600 180	- -	- 180	10 -	90 -	20 -	400 -	10 -	15 -	500 -	340 -	- -	1 -	- -	- -	- -	- -	- -	- -			
BH4	0.5 m	11/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD
			- -	600 180	- -	- 180	10 -	90 -	20 -	400 -	10 -	15 -	500 -	340 -	- -	1 -	- -	- -	- -	- -	- -	- -			
BH4	6.5 m	11/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD
			- -	600 180	- -	- 180	10 -	90 -	20 -	400 -	10 -	15 -	500 -	340 -	- -	1 -	- -	- -	- -	- -	- -	- -			
BH5	0.5 m	06/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD
			- -	600 180	- -	- 180	10 -	90 -	20 -	400 -	10 -	15 -	500 -	340 -	- -	1 -	- -	- -	- -	- -	- -	- -			
BH5	6 m	06/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NAD	NAD	NAD
			- -	600 180	- -	- 180	10 -	90 -	20 -	400 -	10 -	15 -	500 -	340 -	- -	1 -	- -	- -	- -	- -	- -	- -			

Lab result

HIL/HSL value EIL/ESL value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab, refer to the lab report **Blue** = DC exceedance HSL 0-<1 Exceedance

Bold = Lab detections - = Not tested or No HIL/HSL/EIL/ESL (as applicable) or Not applicable NL = Non limiting AD = Asbestos detected NAD = No Asbestos detected

HIL = Health investigation level HSL = Health screening level (excluding DC) EIL = Ecological investigation level ESL = Ecological screening level ML = Management Limit DC = Direct Contact HSL

Notes:

a QA/QC replicate of sample listed directly below the primary sample

b Reported naphthalene laboratory result obtained from BTEXN suite

c Criteria applies to DDT only

Site Assessment Criteria (SAC):

Refer to the SAC section of report for information of SAC sources and rationale. Summary information as follows:

SAC based on generic land use thresholds for Residential B with minimal opportunities for soil access

HIL B	Residential / Low - High Density (NEPC, 2013)
HSL A/B	Residential / Low - High Density (vapour intrusion) (NEPC, 2013)
DC HSL B	Direct contact HSL B Residential (High density) (direct contact) (CRC CARE, 2011)
EIL/ESL UR/POS	Urban Residential and Public Open Space (NEPC, 2013)
ML R/P/POS	Residential, Parkland and Public Open Space (NEPC, 2013)

Appendix J

Borehole Logs

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard AS 1726, Geotechnical Site Investigations Code. In general, the descriptions include strength or density, colour, structure, soil or rock type and inclusions.

Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Type	Particle size (mm)
Boulder	>200
Cobble	63 - 200
Gravel	2.36 - 63
Sand	0.075 - 2.36
Silt	0.002 - 0.075
Clay	<0.002

The sand and gravel sizes can be further subdivided as follows:

Type	Particle size (mm)
Coarse gravel	20 - 63
Medium gravel	6 - 20
Fine gravel	2.36 - 6
Coarse sand	0.6 - 2.36
Medium sand	0.2 - 0.6
Fine sand	0.075 - 0.2

The proportions of secondary constituents of soils are described as:

Term	Proportion	Example
And	Specify	Clay (60%) and Sand (40%)
Adjective	20 - 35%	Sandy Clay
Slightly	12 - 20%	Slightly Sandy Clay
With some	5 - 12%	Clay with some sand
With a trace of	0 - 5%	Clay with a trace of sand

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - an excess or deficiency of particular sizes within the specified range
- Uniformly graded - an excess of a particular particle size
- Gap graded - a deficiency of a particular particle size with the range

Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	vs	<12
Soft	s	12 - 25
Firm	f	25 - 50
Stiff	st	50 - 100
Very stiff	vst	100 - 200
Hard	h	>200

Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	SPT N value	CPT qc value (MPa)
Very loose	vl	<4	<2
Loose	l	4 - 10	2 -5
Medium dense	md	10 - 30	5 - 15
Dense	d	30 - 50	15 - 25
Very dense	vd	>50	>25

Soil Descriptions

Soil Origin

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil - derived from in-situ weathering of the underlying rock;
- Transported soils - formed somewhere else and transported by nature to the site; or
- Filling - moved by man.

Transported soils may be further subdivided into:

- Alluvium - river deposits
- Lacustrine - lake deposits
- Aeolian - wind deposits
- Littoral - beach deposits
- Estuarine - tidal river deposits
- Talus - scree or coarse colluvium
- Slopewash or Colluvium - transported downslope by gravity assisted by water. Often includes angular rock fragments and boulders.

Rock Strength

Rock strength is defined by the Point Load Strength Index ($Is_{(50)}$) and refers to the strength of the rock substance and not the strength of the overall rock mass, which may be considerably weaker due to defects. The test procedure is described by Australian Standard 4133.4.1 - 1993. The terms used to describe rock strength are as follows:

Term	Abbreviation	Point Load Index $Is_{(50)}$ MPa	Approx Unconfined Compressive Strength MPa*
Extremely low	EL	<0.03	<0.6
Very low	VL	0.03 - 0.1	0.6 - 2
Low	L	0.1 - 0.3	2 - 6
Medium	M	0.3 - 1.0	6 - 20
High	H	1 - 3	20 - 60
Very high	VH	3 - 10	60 - 200
Extremely high	EH	>10	>200

* Assumes a ratio of 20:1 for UCS to $Is_{(50)}$

Degree of Weathering

The degree of weathering of rock is classified as follows:

Term	Abbreviation	Description
Extremely weathered	EW	Rock substance has soil properties, i.e. it can be remoulded and classified as a soil but the texture of the original rock is still evident.
Highly weathered	HW	Limonite staining or bleaching affects whole of rock substance and other signs of decomposition are evident. Porosity and strength may be altered as a result of iron leaching or deposition. Colour and strength of original fresh rock is not recognisable
Moderately weathered	MW	Staining and discolouration of rock substance has taken place
Slightly weathered	SW	Rock substance is slightly discoloured but shows little or no change of strength from fresh rock
Fresh stained	Fs	Rock substance unaffected by weathering but staining visible along defects
Fresh	Fr	No signs of decomposition or staining

Degree of Fracturing

The following classification applies to the spacing of natural fractures in diamond drill cores. It includes bedding plane partings, joints and other defects, but excludes drilling breaks.

Term	Description
Fragmented	Fragments of <20 mm
Highly Fractured	Core lengths of 20-40 mm with some fragments
Fractured	Core lengths of 40-200 mm with some shorter and longer sections
Slightly Fractured	Core lengths of 200-1000 mm with some shorter and loner sections
Unbroken	Core lengths mostly > 1000 mm

Rock Descriptions

Rock Quality Designation

The quality of the cored rock can be measured using the Rock Quality Designation (RQD) index, defined as:

$$\text{RQD \%} = \frac{\text{cumulative length of 'sound' core sections} \geq \text{100 mm long}}{\text{total drilled length of section being assessed}}$$

where 'sound' rock is assessed to be rock of low strength or better. The RQD applies only to natural fractures. If the core is broken by drilling or handling (i.e. drilling breaks) then the broken pieces are fitted back together and are not included in the calculation of RQD.

Stratification Spacing

For sedimentary rocks the following terms may be used to describe the spacing of bedding partings:

Term	Separation of Stratification Planes
Thinly laminated	< 6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	> 2 m

Symbols & Abbreviations

Douglas Partners

Introduction

These notes summarise abbreviations commonly used on borehole logs and test pit reports.

Drilling or Excavation Methods

C	Core Drilling
R	Rotary drilling
SFA	Spiral flight augers
NMLC	Diamond core - 52 mm dia
NQ	Diamond core - 47 mm dia
HQ	Diamond core - 63 mm dia
PQ	Diamond core - 81 mm dia

Water

▷	Water seep
▽	Water level

Sampling and Testing

A	Auger sample
B	Bulk sample
D	Disturbed sample
E	Environmental sample
U_{50}	Undisturbed tube sample (50mm)
W	Water sample
pp	pocket penetrometer (kPa)
PID	Photo ionisation detector
PL	Point load strength Is(50) MPa
S	Standard Penetration Test
V	Shear vane (kPa)

Description of Defects in Rock

The abbreviated descriptions of the defects should be in the following order: Depth, Type, Orientation, Coating, Shape, Roughness and Other. Drilling and handling breaks are not usually included on the logs.

Defect Type

B	Bedding plane
Cs	Clay seam
Cv	Cleavage
Cz	Crushed zone
Ds	Decomposed seam
F	Fault
J	Joint
Lam	lamination
Pt	Parting
Sz	Sheared Zone
V	Vein

Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

h	horizontal
v	vertical
sh	sub-horizontal
sv	sub-vertical

Coating or Infilling Term

cln	clean
co	coating
he	healed
inf	infilled
stn	stained
ti	tight
vn	veneer

Coating Descriptor

ca	calcite
cbs	carbonaceous
cly	clay
fe	iron oxide
mn	manganese
slt	silty

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

po	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

Other

fg	fragmented
bnd	band
qtz	quartz

Symbols & Abbreviations

Graphic Symbols for Soil and Rock

General


Asphalt


Road base


Concrete


Filling

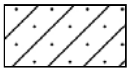
Soils


Topsoil

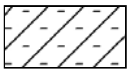

Peat


Clay

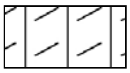

Silty clay

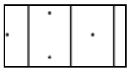

Sandy clay

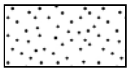

Gravelly clay

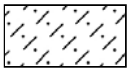

Shaly clay

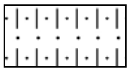

Silt


Clayey silt


Sandy silt


Sand

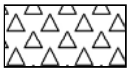

Clayey sand


Silty sand


Gravel


Sandy gravel


Cobbles, boulders

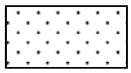

Talus

Sedimentary Rocks

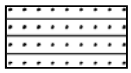

Boulder conglomerate

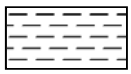

Conglomerate


Conglomeratic sandstone

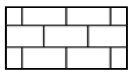

Sandstone


Siltstone


Laminite

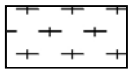

Mudstone, claystone, shale

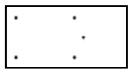

Coal


Limestone

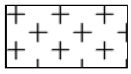
Metamorphic Rocks

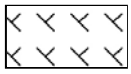

Slate, phyllite, schist

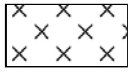

Gneiss

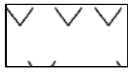

Quartzite

Igneous Rocks


Granite


Dolerite, basalt, andesite


Dacite, epidote


Tuff, breccia


Porphyry

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 575.8 AHD
COORDINATE E:703030.9 **N:** 6085241.3
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 1
PROJECT No: 210506.00
DATE: 10/11/21
SHEET: 1 of 3

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS
	575	0.04	ASPHALTIC CONCRETE, with gravel; blue grey; gravel fraction up to 5mm in size			NA	NA								PID=2.2			0.1		
			FILL/ (GP) Sandy GRAVEL, with silt; blue grey; gravel fraction fine, angular to sub-angular; sand fraction fine to coarse; roadbase		FILL	(D)	D to M								PID=3.1			0.5		
		0.6	(Cl) Silty CLAY, trace sand; red brown; clay fraction medium plasticity; sand fraction fine to coarse; trace ironstone nodules to 3mm in size																S	8,3,4 N=7
		1			ALV	F	=PL to >PL								PID=1.6			1.0		
	574	1.6	(Cl) Silty CLAY, trace sand; yellow brown; clay fraction medium plasticity; sand fraction fine to coarse		ALV	ST	=PL													
		1.8	(CL-Cl) Silty CLAY, trace sand, trace gravel; red brown; clay fraction low to medium plasticity; sand fraction fine to coarse; gravel fraction fine; trace ironstone nodules to 3mm in size		ALV	ST	=PL													
		1.9	(Cl) Silty CLAY, trace sand, trace gravel; red brown mottled yellow brown; clay fraction medium plasticity; sand fraction fine to coarse; gravel fraction fine; with ironstone nodules to 5mm in size		ALV	VST	<PL								PID=2.5			2.0	S	15,15/100 likely refusal on gravel
	573	2.6	(Cl) Silty CLAY, trace sand; red brown; clay fraction medium plasticity; sand fraction fine to medium; with ironstone nodules to 5mm in size																	
		3			ALV	VST	<PL								PID=3.7			3.0	S	9,13,14 N=27
	572	3.9	(Cl) Silty CLAY, with gravel, trace sand; dark red brown mottled yellow brown; clay fraction medium plasticity; gravel fraction fine; sand fraction fine to coarse		RES	H	<PL								PID=6.8			4.0	S	14,19/150
		4.2	SANDSTONE; brown; fine to medium					HW	4.2	L										
	571																			

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
METHOD: AT to 5.0m, then NMLC to 13.1m
REMARKS:

OPERATOR: Sea to Summit
CASING: HQ to 5.0m

LOGGED: LSDJ

EXPORTED 22/11/21 14:28. TEMPLATE ID: DP_103.02.00_COMBINED

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 575.8 AHD
COORDINATE E:703030.9 **N:** 6085241.3
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 1
PROJECT No: 210506.00
DATE: 10/11/21
SHEET: 2 of 3

CONDITIONS ENCOUNTERED																		SAMPLE				TESTING	
				SOIL				ROCK															
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH VL L M H VH EH	RECOVERY (%)	RQD	FRACTURE SPACING (m) 0.01 0.05 0.10 0.50 1.00 5.00	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
5.5 m depth, 10/11/21	570	6	SANDSTONE; brown; fine to medium *(continued)*					MW	5.0 5.1	M				5.37m: J 30° PL, RO, FE 5.38m: J 45° PL, RO, FE 5.55m: J 30°-45° UN, RO, FE 5.6m: J 70° PL, RO, FE 5.75m: J 45° UN, RO, CLY VEN 5.8m: J 25° PL, RO				6	PLT	PL(D)=0.92 PL(D)=0.73
			5.1-7.4m: fractured to slightly frctured					HW	6.0	L	96	73		6.0m: J 30° PL, RO, CLY INF 6.05-6.1m: J 45° UN, decomposed clayey gravel seam 6.15-6.2m: J x2 45°-10° PL, RO, FE/CLY VEN, fragmented						
	569	7						HW-MW	6.2	M				6.47m: J 70° PL, RO, CLY VEN 6.53-6.6m: J x2 70° PL, RO, FE				7	PLT	PL(A)=1.7
								MW	6.9	H				6.9m: J 80° PL, RO, FE 6.95-7.05m: HB x2 7.1m: J 70° PL, RO 7.2m: J 90°-60° CU, RO, FE 7.25m: J 70° UN, RO 7.35m: J 60° PL, RO 7.4m: DB						
	568	8	7.4-8.5m: fractured					MW	7.2	M	100	28		7.55m: J x2 45°-60° PL, RO, CLY VEN 7.65m: J 45° PL RO, FE/CLY VEN 7.7m: J 45° PL, RO, quartz seam to 5mm in size 7.8m: J 45° PL, RO, CLY VEN 7.85-7.9m: J x2 10°-80° UN, RO, FE 7.95m: J 65° PL, RO 8.0m: J 30° PL, RO 8.05m: J 45° PL, RO, CLY VEN 8.1-8.2m: J fragmented 8.35m: J x2 10°-70° PL, RO, CLY VEN 8.45m: J x2 70°-290° PL, RO, CLY VEN 8.5m: J x4 80° PL, RO, FE 8.5-8.6m: DB/CZ 8.6-8.75m:				8	PLT	PL(D)=0.72
	567	8.8	SILTSTONE; blue grey brown; fine																	
		9						MW	8.9	H	64	11		8.75-9.05m: J x8 45° PL, RO, FE, fragmented 8.75-9.05m: J 90° UN, RO, FE 9.2-9.55m: J x7 75°-80° PL, RO, FE 9.4m: J 45° UN, RO				9	PLT	PL(D)=1.4
	566		8.5-10.8m: highly fractured					HW	9.5	L				9.55-9.75m: fragmented						
									9.75											

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
METHOD: AT to 5.0m, then NMLC to 13.1m
REMARKS:

OPERATOR: Sea to Summit
CASING: HQ to 5.0m

LOGGED: LSDJ

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 575.8 AHD
COORDINATE E:703030.9 **N:** 6085241.3
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 1
PROJECT No: 210506.00
DATE: 10/11/21
SHEET: 3 of 3

CONDITIONS ENCOUNTERED																		SAMPLE				TESTING	
				SOIL				ROCK															
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH VL L M H VH EH	RECOVERY (%)	RQD	FRACTURE SPACING (m) 0.01 0.05 0.10 0.50 1.00 5.00	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	565	11	SILTSTONE; blue grey brown; fine *(continued)*					MW	10.4	H	64	11						11	PLT	PL(D)=1.1
									11.0		100	34							PLT	PL(D)=1.3
								MW-SW		H										
	564	12	10.8-13.1m: fractured						12.0									12	PLT	PL(D)=1.7
		12.3	SILTSTONE; blue grey brown; fine								100	57							PLT	PL(D)=2.5
	563	12.9						SW		H										
		13	SILTSTONE; blue grey; fine															13		
		13.1	Borehole discontinued at 13.10m depth Limit of investigation						13.1											
	562	14																14		
	561																			

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
METHOD: AT to 5.0m, then NMLC to 13.1m
REMARKS:

OPERATOR: Sea to Summit
CASING: HQ to 5.0m

LOGGED: LSDJ

EXPORTED 22/11/21 14:28. TEMPLATE ID: DP_103.02.00_COMBINED

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 574.8 AHD
COORDINATE E:703015.1 **N:** 6085266.9
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 2
PROJECT No: 210506.00
DATE: 11/11/21
SHEET: 1 of 3

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	ROCK DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS
		0.0	ASPHALTIC CONCRETE, with gravel; blue grey; gravel fraction sub-angular												PID=0	E		0.1		
		0.02	FILL/ (GP) Sandy GRAVEL, with silt; blue grey; gravel fraction fine, angular to sub-angular; sand fraction fine to coarse; roadbase		FILL	(D)	D to M													
		0.4	(ML) Clayey SILT, trace sand; red brown; silt fraction low plasticity; sand fraction fine to medium												PID=0	E		0.5		
	574															SPT			SPT	4,8,15 N=23
		1			ALV	VST	<PL											0.95		
															PID=0	E		1.0		
		1.4	(Cl) Silty CLAY, trace sand; brown mottled grey; clay fraction medium plasticity; sand fraction fine to medium		ALV	(VST TO H)	<PL													
	573	1.8	(Cl) Silty CLAY, trace sand; orange brown mottled grey mottled red brown; clay fraction medium plasticity; sand fraction fine to medium; with ironstone gravels to 5mm in size												PID=0	E		2.0		
		2			ALV	H	<PL									SPT			SPT	6,18,22 N=40
																		2.45		
		2.7	(Cl) Silty CLAY, trace sand; brown; clay fraction medium plasticity; sand fraction fine to coarse; trace ironstone nodules to 3mm in size		ALV	VST	<PL to =PL													
	572	3													PID=0	E		3.0		
		3.1	(Cl) Silty CLAY, with sand; clay fraction low plasticity; sand fraction fine to medium																	
																		3.5		
	571															SPT			SPT	5,6,11 N=17
		4			ALV	VST	=PL											3.95		
															PID=0.1	E		4.0		
	570	4.9	*(description next page)*		ALV	ST														

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
METHOD: AT to 8.1m, then NMLC to 13.1m
REMARKS:

OPERATOR: Sea to Summit
CASING: HQ to 8.1m

LOGGED: LSDJ

EXPORTED 22/11/21 14:28. TEMPLATE ID: DP_103.02.00_COMBINED

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 574.8 AHD
COORDINATE E:703015.1 **N:** 6085266.9
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 2
PROJECT No: 210506.00
DATE: 11/11/21
SHEET: 2 of 3

CONDITIONS ENCOUNTERED																	SAMPLE				TESTING	
				SOIL			ROCK															
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH VL L M H VH EH	RECOVERY (%)	RQD	FRACTURE SPACING (m) 0.01 0.05 0.10 0.50 1.00 5.00	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
6.7 m depth, 11/11/21 09:00	569	6	(CL-CI) Silty CLAY, trace sand; brown grey mottled yellow brown; clay fraction low to medium plasticity; sand fraction fine to medium *(continued)*		ALV	ST	=PL to >PL									E		5.0		
																SPT			SPT	3,5,6 N=11
																E		5.45 5.5		
	568	6.7 7	(SP) GRAVEL, with silt; brown; fine to medium; possible old river bed		ALV	MD	W									SPT		6.5	SPT	5,8,15 N=23
																		6.95 7		
		7.5	(GP) Gravelly SAND, with silt; brown; sand fraction fine to coarse; gravel fraction fine to coarse; possible old river bed		ALV	D	W													
	567	7.8 8	SANDSTONE; brown blue grey; fine to medium					MW	7.8	M										
									8.1					8.1-8.35m: J 85° PL, SM, FE 8.35m: J 45° PL, RO, CLY VN					PLT	PL(D)=5.9
								MW-SW		H										
	566	9							8.9		100	86		8.85m: J 20°-30° UN, RO 9.0m: J 50° PL, RO, FE					PLT	PL(D)=12.0
								FR	9.1	EH				9.1-9.15m: J x2 45° PL, RO, FE 9.0-9.5m: 9.25m: J x8 45°-80° quartz seams to 5mm 9.35m: J 30°-45° UN, RO, quartz seam to 15mm 9.5m: J 45° PL, RO, CLY VN						
								SW		VH	100	95		9.75m: J 50° PL, SM, CLY VN 9.85m: J 40° PL, RO, CLY VN					PLT	PL(D)=4.1
	565	9.9	SILTY SANDSTONE; blue grey; fine											9.9-10.05m: HB					PLT	PL(D)=4.8

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

EXPORTED 22/11/21 14:28. TEMPLATE ID: DP_103.02.00_COMBINED

PLANT: EVH 2100
METHOD: AT to 8.1m, then NMLC to 13.1m
REMARKS:

OPERATOR: Sea to Summit
CASING: HQ to 8.1m

LOGGED: LSDJ

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 574.8 AHD
COORDINATE E:703015.1 **N:** 6085266.9
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 2
PROJECT No: 210506.00
DATE: 11/11/21
SHEET: 3 of 3

CONDITIONS ENCOUNTERED | **SAMPLE** | **TESTING**

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL: ORIGIN(#)	SOIL: CONSIS.(*) DENSITY.(*)	SOIL: MOISTURE	ROCK: WEATH.	ROCK: DEPTH (m)	ROCK: STRENGTH (VL L M H VH EH)	ROCK: RECOVERY (%)	ROCK: RQD	FRACTURE SPACING (m) (0.01 0.05 0.10 0.50 1.00 5.00)	DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	564	11	SILTY SANDSTONE; blue grey; fine *(continued)*					SW	10.3	VH	100	95		10.0m: J 75° PL, SM 10.05m: J 45° PL, SM, CLY VN 10.0-10.3m: J 85° PL, SM, FE 10.25m: J 10°-20° UN, RO 10.3m: J 60° PL, SM, CLY VN				11	PLT	PL(D)=2.1
								MW-SW		VH				10.35-10.45m: fragmented 10.45m: J 20° UN, RO 10.45-10.5m: DB/CZ 10.5m: J 45°-70° UN, RO, CLY INF 10.65m: J 10° UN, RO 10.75m: J 45° PL, RO, FE 10.75-10.8m: DB					PLT	PL(D)=1.8
									10.8												
								FR		M	100	57								
			11.3-11.5m: decomposed gravel clay seam					MW	11.3	M										
	563	12							11.5											
								SW		H				11.9m: J 45° PL, RO 11.9-12.1m: HB 12.1-12.15m: fragmented				12	PLT	PL(D)=1.3
		12.3	SANDSTONE; blue grey; fine to medium						12.3		100	66		12.4m: J 70° PL, SM 12.5m: J 70° PL, SM, FE 12.55m: J 60° PL, RO, FE					PLT	PL(D)=4.6
	562							SW-FR		VH				12.75m: J 75° PL 12.8m: J 70° PL, RO, CLY VN 12.85-12.9m: J x2 45° PL, RO, FE 12.95-13.05m: HB 13.1m: DB						
		13																		
		13.1	Borehole discontinued at 13.10m depth Limit of investigation						13.1											
	561	14																14		
	560																			

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
METHOD: AT to 8.1m, then NMLC to 13.1m
REMARKS:

OPERATOR: Sea to Summit
CASING: HQ to 8.1m

LOGGED: LSDJ

EXPORTED 22/11/21 14:28. TEMPLATE ID: DP_103.02.00_COMBINED

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 575.2 AHD
COORDINATE E:703061.9 **N:** 6085967
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 3
PROJECT No: 210506.00
DATE: 08/11/21
SHEET: 1 of 4

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	ROCK DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS
	575	0.0	TOPSOIL/FILL/ (CL) Silty Sandy CLAY; black; clay fraction low plasticity; sand fraction fine to medium; with rootlets		TOP and FILL/ FILL	NA (MD)	=PL to >PL/ M								PID=0.2 ID: R1 ID: RR1	E		0.1		
		0.05																		
		0.2			TOP	(ST)	M													
		0.3	FILL/ (SC) Clayey SAND, with gravel, with silt; brown grey black; sand fraction fine to coarse; gravel fraction fine; with rootlets																	
			TOPSOIL/ (ML) Clayey SILT, with sand; black mottled orange brown; silt fraction low plasticity; sand fraction fine to medium												PID=0.4	E		0.5		
																SPT			SPT	3,5,5 N=10
			(CI) Silty CLAY, with sand; red brown; clay fraction medium plasticity; sand fraction fine to medium		ALV	ST												0.95		
	574	1													PID=0.3	E		1.0		
		1.4	(CL-CI) Silty CLAY, trace sand; brown; clay fraction low to medium plasticity; sand fraction fine to medium; trace ironstone gravel to 3mm in size		ALV	(F TO ST)	=PL to >PL													
		1.95	(CL-CI) Silty CLAY, trace sand; orange brown mottled grey brown; clay fraction low to medium plasticity; sand fraction fine to coarse; trace ironstone gravel to 3mm in size												PID=0.1	E		2.0		
		2														SPT			SPT	9,16,15/80
	573																	2.38		
						VST	<PL													
		3													PID=0.2	E		3.0		
	572				ALV											SPT			SPT	8,12,15 N=27
																		3.45		
		4				ST TO VST	<PL to =PL								PID=0.3	E		4.0		
	571															SPT			SPT	5,7,9 N=16
																		4.45		
		4.7	(SC) Clayey SAND, trace gravel; orange brown mottled grey; sand fraction fine to coarse; gravel fraction fine		ALV	MD	M													

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
OPERATOR: Sea to Summit
LOGGED: LSDJ

METHOD: AT to 10.45m, then NMLC to 15.8m
CASING: HQ to 10.5m

REMARKS: *Point load failed along plane of pre-existing weakness during point load test

EXPORTED 22/11/21 14:28. TEMPLATE ID: DP_103.02.00_COMBINED

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 575.2 AHD
COORDINATE E:703061.9 **N:** 6085967
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 3
PROJECT No: 210506.00
DATE: 08/11/21
SHEET: 2 of 4

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS
	570	5.5	(SC) Clayey SAND, trace gravel; orange brown mottled grey; sand fraction fine to coarse; gravel fraction fine *(continued)*		ALV	MD	M								PID=0.6	E		5.0		
																SPT			SPT	10,12,15 N=27
																		5.45		
	569	6	(CL-CI) Silty CLAY, trace sand; grey brown yellow mottled red brown; clay fraction low to medium plasticity; sand fraction fine to medium		ALV	VST	=PL								PID=0.5	E		6.0		
																SPT			SPT	4,9,10 N=19
																		6.45		
▽		6.8	(SM) Silty SAND, trace gravel; brown; sand fraction fine to coarse; gravel fraction fine																	
6.8 m depth, 08/11/21 10:30, Slow inflow	568	7													PID=0.7	E		7.0		
																			SPT	4,7,9 N=16
																SPT				
																		7.75		
	567	8	8.0m: sidewall cave in, SPT not possible		ALV	L TO MD	W								8.0-9.0: Wall cave ins			8		
	566	9																9		
		9.5	(SP) Gravelly SAND, with silt; brown; sand fraction fine to coarse; gravel fraction fine to medium, sub-rounded to rounded		ALV	L TO MD	W								9.0-10.5: Cored through cave ins. Gravels recovered.		D		9.5		

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EXPORTED 22/11/21 14:28. TEMPLATE ID: DP_103.02.00_COMBINED

PLANT: EVH 2100
METHOD: AT to 10.45m, then NMLC to 15.8m
REMARKS: *Point load failed along plane of pre-existing weakness during point load test

OPERATOR: Sea to Summit
CASING: HQ to 10.5m

LOGGED: LSDJ

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 575.2 AHD
COORDINATE E:703061.9 **N:** 6085967
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 3
PROJECT No: 210506.00
DATE: 08/11/21
SHEET: 3 of 4

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS
	565		(SP) Gravelly SAND, with silt; brown; sand fraction fine to coarse; gravel fraction fine to medium, sub-rounded to rounded *(continued)*		ALV	L TO MD	W											10.0		
		10.4	SILTSTONE; grey blue brown; fine						10.45									10.5		
								MW-SW		H										
			10.65-10.7m: clay seam					XW-HW	10.65 10.7	VL						U		10.9		
	564	11									100	90		10.9m: J 10° UN, RO 10.92m: J 80° PL, RO, FE 11.0m: HB 11.15m: J 20° PL, RO, FE healed quartz seam to 5mm				11	PLT	PL(D)=2.7
			10.45-12.4m: fractured to slightly fractured											11.5m: J 70° PL, RO 11.6m: J/DB 70° PL, PO 11.7m: J x2 45°-10° PL/UN, RO/PO 11.75-11.8m: J x2 30°-45° UN, RO 11.85m: J 75° PL, RO 11.95-12.0m: DB x2					PLT PLT	PL(D)=1.2 PL(A)=0.56*
		12						MW-SW		H								12		
	563										100	43		12.4m: J 30° PL, RO 12.45-12.55m: J x3 3 70° PL, RO 12.55-12.65m: fragmented 12.65-12.7m: clay seem to 70mm thick 12.7m: J 30° PL, RO, FE 13.25-12.3m: J x4 70° PL, RO, FE 12.85m: J 45° UN, RO 12.85-12.9m: IR IR, fragmented 13.0m: J 20° PL, RO, FE						
		13																13	PLT	
	562		12.4-14.0m: highly fractured						13.2					13.3m: DB 13.3-13.4m: fragmented						
											100	18		13.45-13.55m: J x3 70° PL, SM 13.6m: J 70° PL, RO, CLY INF 13.7m: J 45°-85° ST 13.75m: J 45° PL, RO, CLY VN 13.78m: J 70° PL, RO 13.8m: J 10°-20° UN, RO, FE, copper oxide veneer 13.9m: J 30°-70° ST, RO 13.95-14.0m: J x3 10°-40° UN, RO 14.1m: J 70° PL, PO 14.15m: J x2 70°-30° UN, RO 14.15-14.25m: J 80°-90° CU, SM, FE						
		14	13.3-14.0m: copper oxide and pyrile flecs					SW		H								14	PLT	PL(D)=0.62*
			14.0m: blue grey						14.0											
	561							SW-FR		H				14.3-14.4m: J x3 60°-70° PL, SM 14.5m: J 20° UN, RO				14.6		
											100	80				U				
			14.0-15.8m: fractured to slightly fractured											14.85-15.0m: J x3 60°-70° PL, SM				14.9	PLT	PL(A)=1.6

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

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PLANT: EVH 2100
OPERATOR: Sea to Summit
LOGGED: LSDJ

METHOD: AT to 10.45m, then NMLC to 15.8m
CASING: HQ to 10.5m

REMARKS: *Point load failed along plane of pre-existing weakness during point load test

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 575.2 AHD
COORDINATE E:703061.9 **N:** 6085967
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 3
PROJECT No: 210506.00
DATE: 08/11/21
SHEET: 4 of 4

CONDITIONS ENCOUNTERED																		SAMPLE				TESTING	
				SOIL				ROCK															
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH VL L M H VH EH	RECOVERY (%)	RQD	FRACTURE SPACING (m) 0.01 0.05 0.10 0.50 1.00 5.00	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	560		SILTSTONE; grey blue brown; fine *(continued)*					SW-FR		H	100	80		15.15m: J x2 70° PL, SM, CLY VN 15.25m: J 80° PL, RO, FE 15.4m: J 60° PL, SM, FE 15.45m: J 10° UN, RO					PLT	PL(D)=1.1
		15.8	Borehole discontinued at 15.80m depth Limit of investigation						15.8					15.8m: J 70° PL, RO						
	559	16																16		
	558	17																17		
	557	18																18		
	556	19																19		

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
OPERATOR: Sea to Summit
LOGGED: LSDJ

METHOD: AT to 10.45m, then NMLC to 15.8m
CASING: HQ to 10.5m

REMARKS: *Point load failed along plane of pre-existing weakness during point load test

EXPORTED 22/11/21 14:28. TEMPLATE ID: DP_103.02.00_COMBINED

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 275.3 AHD
COORDINATE E:703092.2 **N:** 6085282.2
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 4
PROJECT No: 210506.00
DATE: 12/11/21
SHEET: 1 of 4

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	ROCK DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS
	275	0.0	TOPSOIL/FILL/ (ML) Clayey SILT, trace sand; black; silt fraction low plasticity; sand fraction fine to medium; with roots and rootlets		TOP and FILL/ FILL	(ST)	=PL to >PL/ =PL to >PL								ID: R1 ID: RR1	E		0.1		
		0.05				(ST)														
		0.3	FILL/ (CL) Silty CLAY, trace sand; black grey; clay fraction low plasticity; sand fraction fine to medium; with roots and rootlets		FILL	(F TO ST)	>PL									E		0.5		
		0.6	FILL/ (CL) Sandy CLAY, with silt; brown; clay fraction low plasticity; sand fraction fine to medium; with roots and rootlets																	
		1	(ML) Clayey SILT, with sand; brown; silt fraction low plasticity; sand fraction fine to medium		ALV	F TO ST	>PL									E		1.0		
	274	1.2	(CL-CI) Silty CLAY, with sand; red brown; clay fraction low to medium plasticity; sand fraction fine to medium		ALV	ST	>PL													
		2														E		2.0		
		2.2	(ML) Clayey SILT, trace sand; red brown; silt fraction low plasticity; sand fraction fine to medium		ALV	ST	=PL									SPT		2.45	SPT	2,5,8 N=13
	273	3																3		
		3.1	(ML) Sandy SILT; brown; silt fraction low plasticity; sand fraction fine to medium		ALV	F TO ST	>PL									E		3.5		
	272	3.9														SPT		3.95	SPT	3,3,6 N=9
		4	(CI) Sandy CLAY, with silt; red brown; clay fraction medium plasticity; sand fraction fine to medium		ALV	(ST)	>PL											4		
	271	4.6	(SM) Silty SAND; brown; fine to coarse		ALV	MD	M to W													

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
METHOD: AT to 8.0m, then NMLC to 9.3m
REMARKS:

OPERATOR: Sea to Summit
CASING: 115 HWT to 2.1m, HQ to 9.3m

LOGGED: GM

EXPORTED 22/11/21 14:28. TEMPLATE ID: DP_103.02.00_COMBINED

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 275.3 AHD
COORDINATE E:703092.2 **N:** 6085282.2
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 4
PROJECT No: 210506.00
DATE: 12/11/21
SHEET: 2 of 4

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
		5.2	(SM) Silty SAND; brown; fine to coarse *(continued)*		ALV	MD	M to W									E		5.0		
	270		(CL) Silty CLAY, with sand; brown; clay fraction low plasticity; sand fraction fine to medium													SPT			SPT	3,4,9 N=13
		6			ALV	ST	=PL to >PL											5.45		
standing water level	269																	6		
		6.6				F	>PL									E		6.5		
			(SW) SAND; brown; fine to coarse; trace silt, gravel and possibly cobble sized corestone													SPT			SPT	4,6,9 N=15
		7												7.0: Side wall cave in				6.95		
	268																	7		
		8																8.0		
	267				RES	MD	W									SPT			SPT	3,5,11 N=16
														8.0-9.3: HQ advance drilling with SPTs				8.45		
		9																9		
	266								9.65		63	0								
									9.95											

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
METHOD: AT to 8.0m, then NMLC to 9.3m
REMARKS:

OPERATOR: Sea to Summit
CASING: 115 HWT to 2.1m, HQ to 9.3m

LOGGED: GM

EXPORTED 22/11/21 14:28. TEMPLATE ID: DP_103.02.00_COMBINED

Refer to explanatory notes for symbol and abbreviation definitions

Douglas Partners
Geotechnics | Environment | Groundwater

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 275.3 AHD
COORDINATE E:703092.2 **N:** 6085282.2
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 4
PROJECT No: 210506.00
DATE: 12/11/21
SHEET: 3 of 4

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	265		(SW) SAND; brown; fine to coarse; trace silt, gravel and possibly cobble sized corestone *(continued)*		RES	MD	W				63	0								
		10.45							10.45		100	0								
			SANDSTONE; grey brown; fine to coarse; highly fractured					HW-MW		L-M				10.5m: J IR, RO 10.5-10.55m: DS 10.55m: J 45° PL, RO, FE 10.6-10.7m: DB fragmented 10.75m: J x2 IR, RO, FE, fragmented 10.85m: J 70° PL, RO, FE, fragmented 11.0m: HB				
	264	11							10.9		100	35		11.1m: J 60° PL/UN, SM, FE 11.3m: J 50° PL/UN, RO 11.35m: J IR, RO, FE 11.45m: J 10° PL, RO, FE 11.55m: DB				11	PLT	PL(A)=0.51 PL(D)=0.59
	263	12						MW		M	100	56		11.9m: J 45° PL/CU, RO, FE 12.15m: J IR, RO, FE 12.2m: J 50° PL, RO, FE 12.35m: J 60° PL, RO, FE 12.5m: J x2 40°-80° PL, RO, FE 12.65m: J 10° PL, RO, FE 12.7m: J x3 0°-50° PL/IR 12.8m: J IR, RO, FE 12.85m: J 70° PL, RO, FE 12.9m: J 70° PL, RO, FE, fragmented 12.95m: J 70° PL, RO, FE, fragmented 13.0-13.1m: DB too fractured to be logged				12	PLT PLT	PL(D)=0.51 PL(D)=0.32
	262	13							13.1		600	63		13.45m: J 50° PL, SM, FE 13.7m: J 40°-120° PL, SM, FE 13.8m: J 80° IR, SM, FE 13.9m: J 20°-340° PL, SM, FE				13	PLT PLT	PL(D)=0.98 PL(D)=1.1
	261	14						SW		H				14.0m: HB 14.15m: J 0° UN, RO, FE 14.2m: J IR, RO 14.3m: J 60° PL, SM, FE 14.4m: DB				14	PLT	PL(D)=1.5
											100	62		14.55m: J 40° PL, SM, FE 14.75-14.85m: J x3 20° PL, SM, FE/CLY INF						

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
METHOD: AT to 8.0m, then NMLC to 9.3m
REMARKS:

OPERATOR: Sea to Summit
CASING: 115 HWT to 2.1m, HQ to 9.3m

LOGGED: GM

EXPORTED 22/11/21 14:28. TEMPLATE ID: DP_103.02.00_COMBINED

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 275.3 AHD
COORDINATE E:703092.2 **N:** 6085282.2
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 4
PROJECT No: 210506.00
DATE: 12/11/21
SHEET: 4 of 4

CONDITIONS ENCOUNTERED																				SAMPLE				TESTING	
				SOIL				ROCK																	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH VL L M H VH EH	RECOVERY (%)	RQD	FRACTURE SPACING (m) 0.01 0.05 0.10 0.50 1.00 5.00	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	260		SANDSTONE; grey brown; fine to coarse; highly fractured *(continued)*					SW	15.1	H				15.05m: J 40° UN, RO, FE 15.25m: J 50° PL, RO, FE 15.35m: J 40° PL, SM, FE 15.45m: J CU, RO, FE 15.55-15.6m: fragmented 15.65m: J IR, RO, FE 15.7m: J 45° PL, SM, FE 15.75m: J 70° PL, SM, FE 15.8m: J 15° PL, RO, FE 15.85m: J x2 70° IR/PL, SM, FE 15.95m: J 80° PL, SM, FE 16.15m: J IR, RO					PLT	PL(D)=2.8
	259	16						SW-FS		H	100	62						16		
	258	17																17		
	257	18																18		
	256	19																19		
			Borehole discontinued at 16.40m depth Limit of investigation						16.4										PLT	PL(D)=1.3

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
METHOD: AT to 8.0m, then NMLC to 9.3m
REMARKS:

OPERATOR: Sea to Summit
CASING: 115 HWT to 2.1m, HQ to 9.3m

LOGGED: GM

Refer to explanatory notes for symbol and abbreviation definitions

Douglas Partners
Geotechnics | Environment | Groundwater

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 575.2 AHD
COORDINATE E:703084.7 **N:** 6085303.9
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 5
PROJECT No: 210506.00
DATE: 06/11/21
SHEET: 1 of 4

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	ROCK DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	TESTING DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	575	0.0			FILL	NA	NA													
		0.03	FILL/ ASPHALTIC CONCRETE, trace gravel; blue grey; gravel fraction up to 5mm in size		FILL	(D)	D to M								PID=0.9	E		0.1		
		0.3	FILL/ (SP) Gravelly SAND, with silt; brown; sand fraction fine to coarse; gravel fraction fine to medium																	
			FILL/ (ML) Sandy SILT; orange brown; silt fraction low plasticity; sand fraction fine to medium		FILL	(F)	<PL								PID=0.5	E		0.5		
		0.6	FILL/ (CL) Silty CLAY, with sand, trace gravel; orange brown; clay fraction low plasticity; gravel fraction fine; sand fraction fine to coarse; trace roots and plastics		FILL	F	<PL												S	6,4,2 N=6
		0.9																		
		1	(ML) Sandy SILT; yellow orange brown; silt fraction low plasticity; sand fraction fine to medium		ALV	(ST)	<PL								PID=0.5	E		1.0		
	574	1.3																		
			(CL-CI) Silty CLAY, trace sand; dark brown; clay fraction low to medium plasticity; sand fraction fine to coarse		ALV	(ST)	<PL to =PL													
		1.6																		
			(CI) Silty CLAY, trace sand; red brown; clay fraction medium plasticity; sand fraction fine to medium		ALV	ST	<PL to =PL								PID=0.5	E		2.0	S	2,3,7 N=10
	573	2																		
		2.5																		
			(CI) Silty CLAY, with sand; red brown; clay fraction medium plasticity; sand fraction fine to medium		ALV	ST	<PL								PID=0.3	E		3.0	S	4,5,5 N=10
	572	3																		
		3.7																		
			(CL-CI) Sandy CLAY, with silt; yellow orange brown; clay fraction low to medium plasticity; sand fraction fine to medium		ALV	ST	<PL								PID=0.4	E		4.0	S	4,5,5 N=10
	571	4																		
		4.8	(SC) Clayey SAND, with silt; yellow brown; fine to coarse		ALV	L TO MD	D to M													

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
OPERATOR: Sea to Summit
LOGGED: LSDJ

METHOD: AT to 10.5m, then NMLC to 18.0m
CASING: HQ to 10.5m

REMARKS: *Point load failed along plane of pre-existing weakness during point load test

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BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 575.2 AHD
COORDINATE E:703084.7 **N:** 6085303.9
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 5
PROJECT No: 210506.00
DATE: 06/11/21
SHEET: 2 of 4

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	ROCK DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	570	5.7	(SC) Clayey SAND, with silt; yellow brown; fine to coarse *(continued)*		ALV	L TO MD	D to M								PID=8.1	E		5.0	S	3,4,6 N=10
	569	6	(SM) Silty SAND, trace gravel; brown; sand fraction fine to coarse; gravel fraction fine, sub-rounded to sub-angular			MD	M								PID=0.5	E		6.0	S	5,7,6 N=13
	568	7			ALV													7	S	6,10,11 N=21
	567	8.0	(SP) Gravelly SAND, with silt; brown; sand fraction fine to coarse; gravel fraction fine, sub-angular to sub-rounded; auger joilting on possible cobbles, possibly old river bed			(D)	W											8	S	12,15/80
	566	9			ALV													9		
		9.7	*(description next page)*		ALV	(D)	W													

06/11/21 10:30, Groundwater 4

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NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
OPERATOR: Sea to Summit
LOGGED: LSDJ

METHOD: AT to 10.5m, then NMLC to 18.0m
CASING: HQ to 10.5m

REMARKS: *Point load failed along plane of pre-existing weakness during point load test

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 575.2 AHD
COORDINATE E:703084.7 **N:** 6085303.9
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 5
PROJECT No: 210506.00
DATE: 06/11/21
SHEET: 3 of 4

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH VL L M H VH EH	RECOVERY (%)	RQD	FRACTURE SPACING (m) 0.01 0.05 0.10 0.50 1.00 5.00	DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS
	565	11	(GP) Sandy GRAVEL, with silt; brown; gravel fraction fine to coarse, sub-angular to sub-rounded; sand fraction fine to coarse; likely cobbles and boulders *(continued)*		ALV	(D)	W											11	S	15/140
	564	12																12		
	563	12.15	SILTSTONE; brown; fine; highly fractured					HW-MW	12.15 12.25	L-M	100	0		12.15-12.3m: J x3 70° PL, SM 12.3m: J 45° PL, RO, quartz seam 5mm 12.3-12.45m: J x5 70° PL, SM 12.45-12.56m: DB/CZ 12.55-12.65m: J x3 20°-60° UN, RO 12.65-12.7m: J x2 70° PL, RO					
		12.7	SILTSTONE; blue grey brown; fine; fractured to slightly fractured					HW		L										
		13						MW	12.7	L-M				12.8m: J 70° PL, RO 12.9m; VN quartz seam 10mm 12.95-13.0m: J x2 60°-70° PL, RO 13.05m: J 10°-30° ST, RO, FE 13.1m: J 70° PL, SM 13.25m: J/VN 70° PL, RO, quartz seam 5mm 13.3m: J 20° UN, RO, FE				PLT	PL(D)=0.43 PL(A)=0.92 PL(D)=1.1
	562							MW-SW	13.0	M-H										
		13.6	SILTSTONE; blue grey; fine; fractured to slightly fractured						13.6		100	72		13.45m: J/VN 60°-70° PL, RO, quartz seam 5mm 13.5m: VN 60° UN, quartz seam 5mm 13.5m: J 80° PL, SM 13.6m: J 60° PL						PLT	PL(D)=2.6
		14												13.9m: J 60° UN, RO 13.9-14.0m: HB				14		
	561							SW-FR		H				14.15m: J 45° UN, RO					PLT	PL(D)=1.8
											100	88		14.4m: J 45° PL, SM 14.45-14.55m: DB/CZ 14.55m: J 75° PL, SM, FE 14.7-15.0m: J 70° PL, quartz seam 5mm					PLT	PL(D)=0.92*

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
METHOD: AT to 10.5m, then NMLC to 18.0m
REMARKS: *Point load failed along plane of pre-existing weakness during point load test

OPERATOR: Sea to Summit
CASING: HQ to 10.5m
LOGGED: LSDJ

EXPORTED 22/11/21 14:28. TEMPLATE ID: DP_103.02.00_COMBINED

BOREHOLE LOG

CLIENT: The Village Building Co Ltd
PROJECT: Proposed Apartment Building
LOCATION: 6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

SURFACE LEVEL: 575.2 AHD
COORDINATE E:703084.7 **N:** 6085303.9
DATUM/GRID: MGA94 Zone 55
DIP/AZIMUTH: 90°/---

LOCATION ID: 5
PROJECT No: 210506.00
DATE: 06/11/21
SHEET: 4 of 4

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS
	560		SILTSTONE; blue grey; fine; fractured to slightly fractured *(continued)*											15.0m: J 70° PL, RO						
														15.0-15.6m: J 70° PL, quartz seam 5mm						
								SW-FR		H				15.65m: J 0°-70° ST, RO						
														15.7m: J 70° quartz seam 5mm						
														15.8m: J 60° PL, RO, FE					PLT	PL(D)=2.6
	559	16									100	88		16.0m: HB				16	PLT	PL(A)=1.4
																			PLT	PL(D)=1.6
														16.2m: J 70°-45° PL, RO, FE						
									16.3					16.4m: J 30° PL, RO						
														16.5-16.7m: J 80° PL, RO						
														16.75-16.9m: DB/CZ						
	558	17												16.9-17.0m: J 70° PL, RO				17		
														17.05m: J 30° UN, RO						
								FR		H				17.1m: J 75° PL, SM					PLT	PL(D)=1.4
														17.3-17.35m: J 80° UN, RO						
											100	38		17.4-17.5m: J 70° PL, RO						
														17.55m: J 70° PL, SM						
														17.65m: J 70° PL, SM						
														17.75-17.8m: J 75° PL, SM						
	557	18.0	Borehole discontinued at 18.00m depth Limit of investigation						18.0					17.9-18.0m: DB/CZ				18		
	556	19																19		

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: EVH 2100
METHOD: AT to 10.5m, then NMLC to 18.0m
REMARKS: *Point load failed along plane of pre-existing weakness during point load test

OPERATOR: Sea to Summit
CASING: HQ to 10.5m

LOGGED: LSDJ

EXPORTED 22/11/21 14:28. TEMPLATE ID: DP_103.02.00_COMBINED

Appendix K

Laboratory Certificates of Analysis and Chain of Custody Documentation

Douglas Partners
Geotechnics | Environment | Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 210506.01	Suburb: QBN		To: Envirolab Services
Project Manager: PSS	Order Number:	Sampler: LSDJ	12 Ashley St, Chatswood NSW 2067
Email: peter.stevens@douglaspartners.com.au			Attn: Sample Receipt
Turnaround time: ☒ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day			Contact: (02) 9910 6200 samplereceipt@envirolab.com.au
Prior Storage: ☐ Fridge ☐ Freezer ☐ Shelf	Do samples contain 'potential' HBM? ☐ No ☐ Yes (If YES, then handle, transport and store in accordance with FPM HAZID)		

Lab ID	Sample ID: Location / Other ID	Sample ID: Depth From	Sample ID: Depth To	Date Sampled	Sample Type: S - soil W - water	Container Type: G - glass P - plastic	Analytes: Combo 8A										Notes/ Preservation/ Additional Requirements
1	BH1		0.1	10/11	S	G											
2	↓		0.5		↓	↓	X										
3			1.0														
4			2.0														
5			3.0				X										
6	↓		4.0				X										
7	BH2		0.1	4/11			X										
8	↓		0.5														
9			1.0														
10			2.0														
11			3.0														
12			4.0														
13			5.0														
14	↓		5.5		↓	↓	X										

Metals to analyse:			LAB RECEIPT
Number of samples in container:	Transported to laboratory by:		Lab Ref. No: 282921
Send results to: Douglas Partners Pty Ltd			Received by:
Address: Unit 2, 73 Sheppard Street, Hume ACT 262	Phone: (02) 6260 2788		Date & Time: 16/11/2021 10:45
Relinquished by:	Date:	Signed:	Signed:

Updated COC 16/11/2021 11:55

Douglas Partners
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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	**Suburb:**		**To:** *Envirolab Services*
Project Manager:	**Order Number:**	**Sampler:**	*12 Ashley St, Chatswood NSW 2067*
Email:			**Attn:** *Sample Receipt*
Turnaround time: ☐ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day			**Contact:** *(02) 9910 6200 samplereceipt@envirolab.com.au*
Prior Storage: ☐ Fridge ☐ Freezer ☐ Shelf	**Do samples contain 'potential' HBM?** ☐ No ☐ Yes (If YES, then handle, transport and store in accordance with FPM HAZID)		

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water	Container Type: G - glass P - plastic	Analytes: combo 8A										Notes/ Preservation/ Additional Requirements
15	BH3		0.1	8/11	S	G	X										
16	↓		0.5	↓	↓	↓											
17			1.0				X										
18			2.0														
19			3.0														
20			4.0														
21			5.0														
22			6.0														
23	↓		7.0	↓			X										
24	BH4		0.5	11/11			X										
25	↓		1.0	↓													
26			2.0														
27			3.5														
28	↓		5.0	↓	↓	↓											

Metals to analyse:			**LAB RECEIPT**
Number of samples in container:	**Transported to laboratory by:**		**Lab Ref. No:** 282921
Send results to: Douglas Partners Pty Ltd			**Received by:**
Address: Unit 2, 73 Sheppard Street, Hume ACT 262	**Phone:** (02) 6260 2788		**Date & Time:** 16/11/2021 10:45
Relinquished by:	**Date:**	**Signed:**	**Signed:**

Douglas Partners
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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	Suburb:		To: *Envirolab Services*
Project Manager:	Order Number:	Sampler:	*12 Ashley St, Chatswood NSW 2067*
Email:			Attn: *Sample Receipt*
Turnaround time: ☐ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day			Contact: *(02) 9910 6200 samplereceipt@envirolab.com.au*
Prior Storage: ☐ Fridge ☐ Freezer ☐ Shelf	Do samples contain 'potential' HBM? ☐ No ☐ Yes (If YES, then handle, transport and store in accordance with FPM HAZID)		

Lab ID	Sample ID: Location / Other ID	Sample ID: Depth From	Sample ID: Depth To	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: Combo 3A	Analytes	Analytes	Analytes	Analytes	Analytes	Analytes	Analytes	Analytes	Analytes	Analytes	Notes/ Preservation/ Additional Requirements
29	BH4		6.5	4/11	S	G	X											
30	BH5		0.1	5/11														
31			0.5				X											
32			1.0															
33			2.0															
34			3.0															
35			4.0															
36			5.0															
37			6.0				X											
38	R1						X											
39.	R2																	

Metals to analyse:		**LAB RECEIPT**
Number of samples in container:	Transported to laboratory by:	Lab Ref. No: 282921
Send results to: Douglas Partners Pty Ltd		Received by:
Address: Unit 2, 73 Sheppard Street, Hume ACT 262	Phone: (02) 6260 2788	Date & Time: 16/11/2021 10:45
Relinquished by:	Date: Signed:	Signed:

Douglas Partners
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CHAIN OF CUSTODY DESPATCH SHEET

Project No: 210506.01	**Suburb:** QBN	**To:** *Envirolab Services*
Project Manager: PSS	**Order Number:**	**Sampler:** LSDJ — *12 Ashley St, Chatswood NSW 2067*
Email: peter.storey@douglaspartners.com.au		**Attn:** *Sample Receipt*
Turnaround time: ☒ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day		**Contact:** *(02) 9910 6200 samplereceipt@envirolab.com.au*
Prior Storage: ☐ Fridge ☐ Freezer ☐ Shelf	**Do samples contain 'potential' HBM?** ☐ No ☐ Yes (If YES, then handle, transport and store in accordance with FPM HAZID)	

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water	Container Type: G - glass P - plastic	Analytes	Notes/ Preservation/ Additional Requirements
1	BH1		0.1	10/11	S	G		
2	↓		0.5		↓	↓		
3			1.0					
4			2.0					
5			3.0					
6			4.0					
7	BH2		0.1	11/11				
8	↓		0.5					
9			1.0					
10			2.0					
11			3.0					
12			4.0					
13			5.0					
14	↓		5.5		↓	↓		

ENVIROLAB GROUP — Envirolab Services, 12 Ashley St, Chatswood NSW 2067, Ph: (02) 9910 6200

Job No: 282921
Date Received: 16/11/21
Time Received: 1045
Received By: TR
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken

Metals to analyse:

Number of samples in container:		**Transported to laboratory by:**	
Send results to:	Douglas Partners Pty Ltd		
Address:	Unit 2, 73 Sheppard Street, Hume ACT 262	**Phone:** (02) 6260 2788	
Relinquished by:		**Date:**	**Signed:**

LAB RECEIPT

Lab Ref. No:	282921
Received by:	TROBERTS
Date & Time:	16/11/21 1045
Signed:	

Douglas Partners
Geotechnics | Environment | Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	**Suburb:**		**To:** *Envirolab Services*
Project Manager:	**Order Number:**	**Sampler:**	*12 Ashley St, Chatswood NSW 2067*
Email:			**Attn:** *Sample Receipt*
Turnaround time: ☐ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day			**Contact:** *(02) 9910 6200 samplereceipt@envirolab.com.au*
Prior Storage: ☐ Fridge ☐ Freezer ☐ Shelf	**Do samples contain 'potential' HBM?** ☐ No ☐ Yes (If YES, then handle, transport and store in accordance with FPM HAZID)		

Lab ID	Sample ID: Location / Other ID	Sample ID: Depth From	Sample ID: Depth To	Date Sampled	Sample Type: S - soil W - water	Container Type: G - glass P - plastic	Analytes	Notes/ Preservation/ Additional Requirements
15	BH3		0-1	8/11	S	G		
16	↓		0.5	↓	↓	↓		
17			1.0					
18			2.0					
19			3.0					
20			4.0					
21			5.0					
22			6.0					
23	↓		7.0	↓				
24	BH4		0-5	11/11				
25	↓		1.0	↓				
26			2.0					
27			3.5					
28	↓		5.0	↓	↓	↓		

Metals to analyse:			**LAB RECEIPT**
Number of samples in container:	**Transported to laboratory by:**		**Lab Ref. No:** 282921
Send results to: Douglas Partners Pty Ltd			**Received by:** Trobents
Address: Unit 2, 73 Sheppard Street, Hume ACT 262	**Phone:** (02) 6260 2788		**Date & Time:** 16/11/21 1045
Relinquished by:	**Date:**	**Signed:**	**Signed:**

Douglas Partners
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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	**Suburb:**	**To:** *Envirolab Services*
Project Manager:	**Order Number:** **Sampler:**	*12 Ashley St, Chatswood NSW 2067*
Email:		**Attn:** *Sample Receipt*
Turnaround time: ☐ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day		**Contact:** *(02) 9910 6200 samplereceipt@envirolab.com.au*
Prior Storage: ☐ Fridge ☐ Freezer ☐ Shelf	**Do samples contain 'potential' HBM?** ☐ No ☐ Yes (If YES, then handle, transport and store in accordance with FPM HAZID)	

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water	Container Type: G - glass P - plastic	Analytes	Notes/ Preservation/ Additional Requirements
29	BH4		0.5	4/11	S	G		
30	BH5		0.1	8/11				
31	↓		0.5	↓				
32			1.0					
33			2.0					
34			3.0					
35			4.0					
36			5.0					
37	↓		6.0	↓				
38	R1							
39	R2				↓	↓		

Metals to analyse:			**LAB RECEIPT** 282921
Number of samples in container:	**Transported to laboratory by:**		**Lab Ref. No:**
Send results to: Douglas Partners Pty Ltd			**Received by:** TROVENTS
Address: Unit 2, 73 Sheppard Street, Hume ACT 262	**Phone:** (02) 6260 2788		**Date & Time:** 16/11/21 1045
Relinquished by:	**Date:**	**Signed:**	**Signed:**

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Canberra
Attention	Peter Storey

Sample Login Details

Your reference	210506.01, QBN
Envirolab Reference	282921
Date Sample Received	16/11/2021
Date Instructions Received	16/11/2021
Date Results Expected to be Reported	23/11/2021

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	39 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	7
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils	On Hold
BH1-0.1									✓
BH1-0.5	✓	✓	✓	✓	✓	✓	✓	✓	
BH1-1.0									✓
BH1-2.0									✓
BH1-3.0	✓	✓	✓	✓	✓	✓	✓	✓	
BH1-4.0	✓	✓	✓	✓	✓	✓	✓	✓	
BH2-0.1	✓	✓	✓	✓	✓	✓	✓	✓	
BH2-0.5									✓
BH2-1.0									✓
BH2-2.0									✓
BH2-3.0									✓
BH2-4.0									✓
BH2-5.0									✓
BH2-5.5	✓	✓	✓	✓	✓	✓	✓	✓	
BH3-0.1	✓	✓	✓	✓	✓	✓	✓	✓	
BH3-0.5									✓
BH3-1.0	✓	✓	✓	✓	✓	✓	✓	✓	
BH3-2.0									✓
BH3-3.0									✓
BH3-4.0									✓
BH3-5.0									✓
BH3-6.0									✓
BH3-7.0	✓	✓	✓	✓	✓	✓	✓	✓	
BH4-0.5	✓	✓	✓	✓	✓	✓	✓	✓	
BH4-1.0									✓
BH4-2.0									✓
BH4-3.5									✓
BH4-5.0									✓
BH4-6.5	✓	✓	✓	✓	✓	✓	✓	✓	
BH5-0.1									✓
BH5-0.5	✓	✓	✓	✓	✓	✓	✓	✓	
BH5-1.0									✓

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ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils	On Hold
BH5-2.0									✓
BH5-3.0									✓
BH5-4.0									✓
BH5-5.0									✓
BH5-6.0	✓	✓	✓	✓	✓	✓	✓	✓	
R1	✓	✓	✓	✓	✓	✓	✓	✓	
R2									✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 282921

Client Details

Client	Douglas Partners Canberra
Attention	Peter Storey
Address	Unit 2, 73 Sheppard St,, HUME, ACT, 2620

Sample Details

Your Reference	**210506.01, QBN**
Number of Samples	39 Soil
Date samples received	16/11/2021
Date completed instructions received	16/11/2021

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	23/11/2021
Date of Issue	22/11/2021

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Asbestos Approved By
Analysed by Asbestos Approved Analyst: Panika Wongchanda
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Jeremy Faircloth, Operations Manager, Sydney
Lucy Zhu, Asbestos Supervisor

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		282921-2	282921-5	282921-6	282921-7	282921-14
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	3.0	4.0	0.1	5.5
Date Sampled		10/11/2021	10/11/2021	10/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	75	90	73	72	94

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		282921-15	282921-17	282921-23	282921-24	282921-29
Your Reference	UNITS	BH3	BH3	BH3	BH4	BH4
Depth		0.1	1.0	7.0	0.5	6.5
Date Sampled		08/11/2021	08/11/2021	08/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	94	78	89	93	71

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		282921-31	282921-37	282921-38
Your Reference	UNITS	BH5	BH5	R1
Depth		0.5	6.0	-
Date Sampled		06/11/2021	06/11/2021	06/11/2021
Type of sample		Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021
TRH C_6 - C_9	mg/kg	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	78	96	79

svTRH (C10-C40) in Soil						
Our Reference		282921-2	282921-5	282921-6	282921-7	282921-14
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	3.0	4.0	0.1	5.5
Date Sampled		10/11/2021	10/11/2021	10/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	74	83	72	86	85

svTRH (C10-C40) in Soil						
Our Reference		282921-15	282921-17	282921-23	282921-24	282921-29
Your Reference	UNITS	BH3	BH3	BH3	BH4	BH4
Depth		0.1	1.0	7.0	0.5	6.5
Date Sampled		08/11/2021	08/11/2021	08/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	82	80	69	75	75

svTRH (C10-C40) in Soil				
Our Reference		282921-31	282921-37	282921-38
Your Reference	UNITS	BH5	BH5	R1
Depth		0.5	6.0	-
Date Sampled		06/11/2021	06/11/2021	06/11/2021
Type of sample		Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	17/11/2021	17/11/2021	17/11/2021
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	71	80	77

PAHs in Soil						
Our Reference		282921-2	282921-5	282921-6	282921-7	282921-14
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	3.0	4.0	0.1	5.5
Date Sampled		10/11/2021	10/11/2021	10/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	79	86	66	75	83

PAHs in Soil						
Our Reference		282921-15	282921-17	282921-23	282921-24	282921-29
Your Reference	UNITS	BH3	BH3	BH3	BH4	BH4
Depth		0.1	1.0	7.0	0.5	6.5
Date Sampled		08/11/2021	08/11/2021	08/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	0.2	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	77	79	68	75	87

PAHs in Soil				
Our Reference		282921-31	282921-37	282921-38
Your Reference	UNITS	BH5	BH5	R1
Depth		0.5	6.0	-
Date Sampled		06/11/2021	06/11/2021	06/11/2021
Type of sample		Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	87	78	77

Organochlorine Pesticides in soil						
Our Reference		282921-2	282921-5	282921-6	282921-7	282921-14
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	3.0	4.0	0.1	5.5
Date Sampled		10/11/2021	10/11/2021	10/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	73	85	66	73	78

Organochlorine Pesticides in soil						
Our Reference		282921-15	282921-17	282921-23	282921-24	282921-29
Your Reference	UNITS	BH3	BH3	BH3	BH4	BH4
Depth		0.1	1.0	7.0	0.5	6.5
Date Sampled		08/11/2021	08/11/2021	08/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	72	68	88	70	86

Organochlorine Pesticides in soil				
Our Reference		282921-31	282921-37	282921-38
Your Reference	UNITS	BH5	BH5	R1
Depth		0.5	6.0	-
Date Sampled		06/11/2021	06/11/2021	06/11/2021
Type of sample		Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	76	70

Organophosphorus Pesticides in Soil						
Our Reference		282921-2	282921-5	282921-6	282921-7	282921-14
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	3.0	4.0	0.1	5.5
Date Sampled		10/11/2021	10/11/2021	10/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	73	85	66	73	78

Organophosphorus Pesticides in Soil						
Our Reference		282921-15	282921-17	282921-23	282921-24	282921-29
Your Reference	UNITS	BH3	BH3	BH3	BH4	BH4
Depth		0.1	1.0	7.0	0.5	6.5
Date Sampled		08/11/2021	08/11/2021	08/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	72	68	88	70	86

Organophosphorus Pesticides in Soil				
Our Reference		282921-31	282921-37	282921-38
Your Reference	UNITS	BH5	BH5	R1
Depth		0.5	6.0	-
Date Sampled		06/11/2021	06/11/2021	06/11/2021
Type of sample		Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	76	70

PCBs in Soil						
Our Reference		282921-2	282921-5	282921-6	282921-7	282921-14
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	3.0	4.0	0.1	5.5
Date Sampled		10/11/2021	10/11/2021	10/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	73	85	66	73	78

PCBs in Soil						
Our Reference		282921-15	282921-17	282921-23	282921-24	282921-29
Your Reference	UNITS	BH3	BH3	BH3	BH4	BH4
Depth		0.1	1.0	7.0	0.5	6.5
Date Sampled		08/11/2021	08/11/2021	08/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	72	68	88	70	86

PCBs in Soil				
Our Reference		282921-31	282921-37	282921-38
Your Reference	UNITS	BH5	BH5	R1
Depth		0.5	6.0	-
Date Sampled		06/11/2021	06/11/2021	06/11/2021
Type of sample		Soil	Soil	Soil
Date extracted	-	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	76	70

Acid Extractable metals in soil						
Our Reference		282921-2	282921-5	282921-6	282921-7	282921-14
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	3.0	4.0	0.1	5.5
Date Sampled		10/11/2021	10/11/2021	10/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	18	18	21	18	11
Copper	mg/kg	1	11	10	2	8
Lead	mg/kg	3	10	12	5	7
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	9	8	9	7
Zinc	mg/kg	12	14	13	14	18

Acid Extractable metals in soil						
Our Reference		282921-15	282921-17	282921-23	282921-24	282921-29
Your Reference	UNITS	BH3	BH3	BH3	BH4	BH4
Depth		0.1	1.0	7.0	0.5	6.5
Date Sampled		08/11/2021	08/11/2021	08/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	10	16	13	11	13
Copper	mg/kg	16	10	8	7	8
Lead	mg/kg	120	19	9	10	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	8	8	5	8
Zinc	mg/kg	66	30	27	24	26

Acid Extractable metals in soil				
Our Reference		282921-31	282921-37	282921-38
Your Reference	UNITS	BH5	BH5	R1
Depth		0.5	6.0	-
Date Sampled		06/11/2021	06/11/2021	06/11/2021
Type of sample		Soil	Soil	Soil
Date prepared	-	18/11/2021	18/11/2021	18/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021
Arsenic	mg/kg	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	10	8	11
Copper	mg/kg	7	6	14
Lead	mg/kg	20	7	97
Mercury	mg/kg	<0.1	<0.1	0.1
Nickel	mg/kg	5	7	5
Zinc	mg/kg	65	16	64

Moisture						
Our Reference		282921-2	282921-5	282921-6	282921-7	282921-14
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	3.0	4.0	0.1	5.5
Date Sampled		10/11/2021	10/11/2021	10/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
Moisture	%	3.6	13	13	5.7	15

Moisture						
Our Reference		282921-15	282921-17	282921-23	282921-24	282921-29
Your Reference	UNITS	BH3	BH3	BH3	BH4	BH4
Depth		0.1	1.0	7.0	0.5	6.5
Date Sampled		08/11/2021	08/11/2021	08/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	17/11/2021	17/11/2021	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021	18/11/2021	18/11/2021
Moisture	%	16	15	22	14	18

Moisture				
Our Reference		282921-31	282921-37	282921-38
Your Reference	UNITS	BH5	BH5	R1
Depth		0.5	6.0	-
Date Sampled		06/11/2021	06/11/2021	06/11/2021
Type of sample		Soil	Soil	Soil
Date prepared	-	17/11/2021	17/11/2021	17/11/2021
Date analysed	-	18/11/2021	18/11/2021	18/11/2021
Moisture	%	4.3	11	14

Asbestos ID - soils						
Our Reference		282921-2	282921-5	282921-6	282921-7	282921-14
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	3.0	4.0	0.1	5.5
Date Sampled		10/11/2021	10/11/2021	10/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021
Sample mass tested	g	Approx. 50g	Approx. 50g	Approx. 45g	Approx. 45g	Approx. 45g
Sample Description	-	Grey coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	NO	NO	NO	NO	NO
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		282921-15	282921-17	282921-23	282921-24	282921-29
Your Reference	UNITS	BH3	BH3	BH3	BH4	BH4
Depth		0.1	1.0	7.0	0.5	6.5
Date Sampled		08/11/2021	08/11/2021	08/11/2021	11/11/2021	11/11/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021
Sample mass tested	g	Approx. 45g	Approx. 40g	Approx. 45g	Approx. 45g	Approx. 40g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	NO	NO	NO	NO	NO
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils				
Our Reference		282921-31	282921-37	282921-38
Your Reference	UNITS	BH5	BH5	R1
Depth		0.5	6.0	-
Date Sampled		06/11/2021	06/11/2021	06/11/2021
Type of sample		Soil	Soil	Soil
Date analysed	-	22/01/2021	22/01/2021	22/01/2021
Sample mass tested	g	Approx. 40g	Approx. 45g	Approx. 40g
Sample Description	-	Brown fine-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	NO	NO	NO
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	282921-5
Date extracted	-			17/11/2021	2	17/11/2021	17/11/2021		17/11/2021	17/11/2021
Date analysed	-			18/11/2021	2	18/11/2021	18/11/2021		18/11/2021	18/11/2021
TRH C_6 - C_9	mg/kg	25	Org-023	<25	2	<25	<25	0	80	93
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	2	<25	<25	0	80	93
Benzene	mg/kg	0.2	Org-023	<0.2	2	<0.2	<0.2	0	74	94
Toluene	mg/kg	0.5	Org-023	<0.5	2	<0.5	<0.5	0	81	94
Ethylbenzene	mg/kg	1	Org-023	<1	2	<1	<1	0	91	91
m+p-xylene	mg/kg	2	Org-023	<2	2	<2	<2	0	78	94
o-Xylene	mg/kg	1	Org-023	<1	2	<1	<1	0	73	92
Naphthalene	mg/kg	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	93	2	75	96	25	93	85

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	31	17/11/2021	17/11/2021		[NT]	[NT]
Date analysed	-			[NT]	31	18/11/2021	18/11/2021		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	31	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	31	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	31	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	31	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	31	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	31	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	31	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	31	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	31	78	70	11	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	282921-5
Date extracted	-			17/11/2021	2	17/11/2021	17/11/2021		17/11/2021	17/11/2021
Date analysed	-			17/11/2021	2	17/11/2021	17/11/2021		17/11/2021	17/11/2021
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	2	<50	<50	0	113	115
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	2	<100	<100	0	123	119
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	2	<100	<100	0	128	111
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	2	<50	<50	0	113	115
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	2	<100	<100	0	123	119
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	2	<100	<100	0	128	111
Surrogate o-Terphenyl	%		Org-020	89	2	74	80	8	88	105

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	31	17/11/2021	17/11/2021		[NT]	[NT]
Date analysed	-			[NT]	31	17/11/2021	17/11/2021		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	31	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	31	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	31	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	31	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	31	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	31	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	31	71	84	17	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	282921-5
Date extracted	-			17/11/2021	2	17/11/2021	17/11/2021		17/11/2021	17/11/2021
Date analysed	-			18/11/2021	2	18/11/2021	18/11/2021		18/11/2021	18/11/2021
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	97	99
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	85	85
Fluorene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	82	90
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	82	79
Anthracene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	96	94
Pyrene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	93	95
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	77	83
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	2	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	2	<0.05	<0.05	0	88	96
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	127	2	79	69	14	80	81

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	31	17/11/2021	17/11/2021		[NT]	[NT]
Date analysed	-			[NT]	31	18/11/2021	18/11/2021		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	31	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	31	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	31	87	72	19	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	282921-5
Date extracted	-			17/11/2021	2	17/11/2021	17/11/2021		17/11/2021	17/11/2021
Date analysed	-			18/11/2021	2	18/11/2021	18/11/2021		18/11/2021	18/11/2021
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	78	80
HCB	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	85	85
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	87	87
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	99	97
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	98	102
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	90	96
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	100	98
Endrin	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	86	82
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	84	82
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	84	86
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	111	2	73	74	1	72	74

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	31	17/11/2021	17/11/2021		[NT]	[NT]
Date analysed	-			[NT]	31	18/11/2021	18/11/2021		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	31	86	72	18	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	282921-5
Date extracted	-			17/11/2021	2	17/11/2021	17/11/2021		17/11/2021	17/11/2021
Date analysed	-			18/11/2021	2	18/11/2021	18/11/2021		18/11/2021	18/11/2021
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	64	64
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	99	95
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	67	65
Malathion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	89	93
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	98	104
Parathion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	66	64
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	68	68
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	111	2	73	74	1	72	74

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	31	17/11/2021	17/11/2021		[NT]	[NT]
Date analysed	-			[NT]	31	18/11/2021	18/11/2021		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	31	86	72	18	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	282921-5
Date extracted	-			17/11/2021	2	17/11/2021	17/11/2021		17/11/2021	17/11/2021
Date analysed	-			18/11/2021	2	18/11/2021	18/11/2021		18/11/2021	18/11/2021
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	96	102
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	111	2	73	74	1	72	74

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	31	17/11/2021	17/11/2021		[NT]	[NT]
Date analysed	-			[NT]	31	18/11/2021	18/11/2021		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	31	86	72	18	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	282921-5
Date prepared	-			18/11/2021	2	18/11/2021	18/11/2021		18/11/2021	18/11/2021
Date analysed	-			18/11/2021	2	18/11/2021	18/11/2021		18/11/2021	18/11/2021
Arsenic	mg/kg	4	Metals-020	<4	2	<4	<4	0	112	90
Cadmium	mg/kg	0.4	Metals-020	<0.4	2	<0.4	<0.4	0	114	89
Chromium	mg/kg	1	Metals-020	<1	2	18	17	6	117	93
Copper	mg/kg	1	Metals-020	<1	2	1	2	67	114	104
Lead	mg/kg	1	Metals-020	<1	2	3	3	0	119	92
Mercury	mg/kg	0.1	Metals-021	<0.1	2	<0.1	<0.1	0	88	90
Nickel	mg/kg	1	Metals-020	<1	2	9	8	12	116	94
Zinc	mg/kg	1	Metals-020	<1	2	12	12	0	116	92

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	31	18/11/2021	18/11/2021		[NT]	[NT]
Date analysed	-			[NT]	31	18/11/2021	18/11/2021		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	31	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	31	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	31	10	8	22	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	31	7	6	15	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	31	20	16	22	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	31	5	5	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	31	65	53	20	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Asbestos: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures.
We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.
Note: Samples 282921-2, 5, 6, 7, 14, 15, 17, 23, 24, 29, 31, 37, 38 were sub-sampled from jars provided by the client.

Appendix L

Data Quality Assessment

Appendix L
Data Quality Assessment
6 & 10-12 Rutledge Street and Part 257 Crawford St, Queanbeyan

L1.0 Field and Laboratory Data Quality Assurance and Quality Control

The field and laboratory data quality assurance and quality control (QA/QC) procedures and results are summarised in the following Table 1. Reference should be made to the field work methodology and the laboratory results / certificates of analysis for further details. The relative percentage difference (RPD) results, along with the other filed QC samples are included in the summary results tables.

Table 1: Field and Laboratory Quality Control

Item	Evaluation / Acceptance Criteria	Compliance
Analytical laboratories used	NATA accreditation	C
Holding times	Various based on type of analysis	C
Intra-laboratory replicates	10% of primary samples; <30% RPD	PC
Laboratory / Reagent Blanks	1 per batch; <PQL	C
Matrix Spikes	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Surrogate Spikes	All organics analysis; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Control Samples	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Standard Operating Procedures (SOP)	Adopting SOP for all aspects of the sampling field work	C

Notes:
C = compliance; PC = partial compliance; NC = non-compliance

The RPD results were all within the acceptable range.

In summary, the QC data is determined to be of sufficient quality to be considered acceptable for the assessment.

L2.0 Data Quality Indicators

The reliability of field procedures and analytical results was assessed against the following data quality indicators (DQIs) as outlined in NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013):

- Completeness: a measure of the amount of usable data from a data collection activity;
- Comparability: the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event;
- Representativeness: the confidence (qualitative) of data representativeness of media present on-site;
- Precision: a measure of variability or reproducibility of data; and
- Accuracy: a measure of closeness of the data to the 'true' value.

Table 2: Data Quality Indicators

Data Quality Indicator	Method(s) of Achievement
Completeness	Systematic and selected target locations sampled.
	Preparation of borehole logs, sample location plan and chain of custody records.
	Laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody.
	Samples analysed for contaminants of potential concern (COPC) identified in the Conceptual Site Model (CSM).
	Completion of chain of custody (COC) documentation.
	NATA accredited laboratory results certificates provided by the laboratory.
	Satisfactory frequency and results for field and laboratory quality control (QC) samples as discussed in Section 1.
Comparability	Using appropriate techniques for sample recovery, storage and transportation, which were the same for the duration of the project.
	Experienced sampler(s) used.
	Use of NATA registered laboratories, with test methods the same or similar between laboratories.
	Satisfactory results for field and laboratory QC samples.
Representativeness	Target media sampled.
	Sample numbers recovered and analysed are considered to be representative of the target media and complying with DQOs.
	Samples were extracted and analysed within holding times.
	Samples were analysed in accordance with the COC.
Precision	Field staff followed standard operating procedures.
	Acceptable RPD between original samples and replicates.
	Satisfactory results for all other field and laboratory QC samples.
Accuracy	Field staff followed standard operating procedures.
	Satisfactory results for all field and laboratory QC samples.

Based on the above, it is considered that the DQIs have been generally complied with.

L3.0 Conclusion

Based on the results of the field QA and field and laboratory QC, and evaluation against the DQIs it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

L4.0 References

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM].* Australian Government Publishing Services Canberra: National Environment Protection Council.

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Table QA1: Relative Percentage Difference Results – Intra-laboratory Replicates

			Metals								TRH						BTEX				PAH			
			Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene [b]	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
R1	0 m	06/11/2021	<4	<0.4	11	14	97	0.1	5	64	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	0.1
BH3	0.1 m	08/11/2021	<4	<0.4	10	16	120	<0.1	5	66	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.05	<0.5	0.2
		Difference	0	0	1	2	23	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
		RPD	0%	0%	10%	13%	21%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**67%**

			OCP											OPP	PCB								
			DDD	DDT+DDE+DDD [c]	DDE	DDT	Aldrin & Dieldrin	Total Chlordane	Endrin	Total Endosulfan	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyriphos	Aroclor 1016	Total PCB	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
R1	0 m	06/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH3	0.1 m	08/11/2021	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
		Difference	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		RPD	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%